

FIG. 1

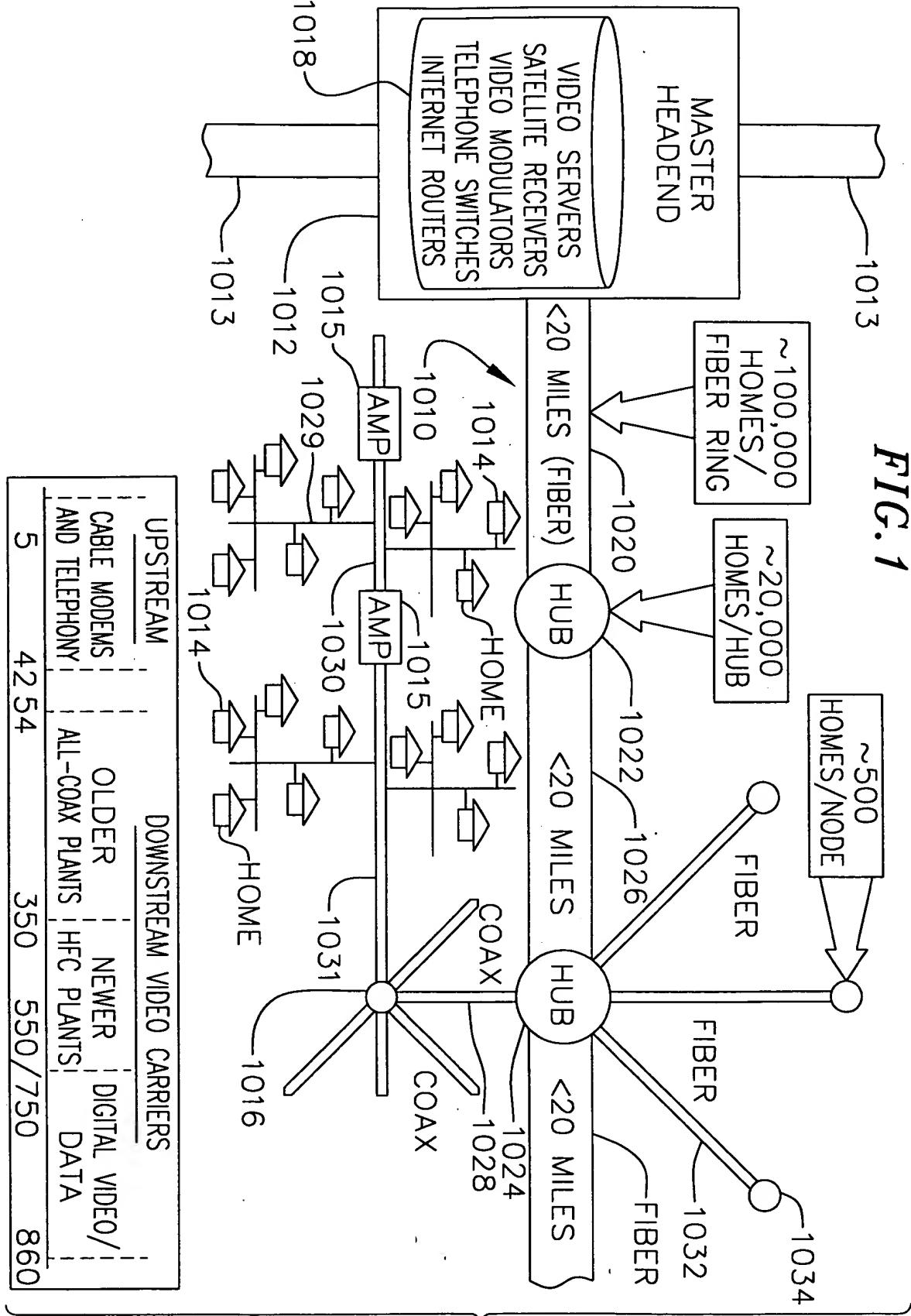


FIG.2

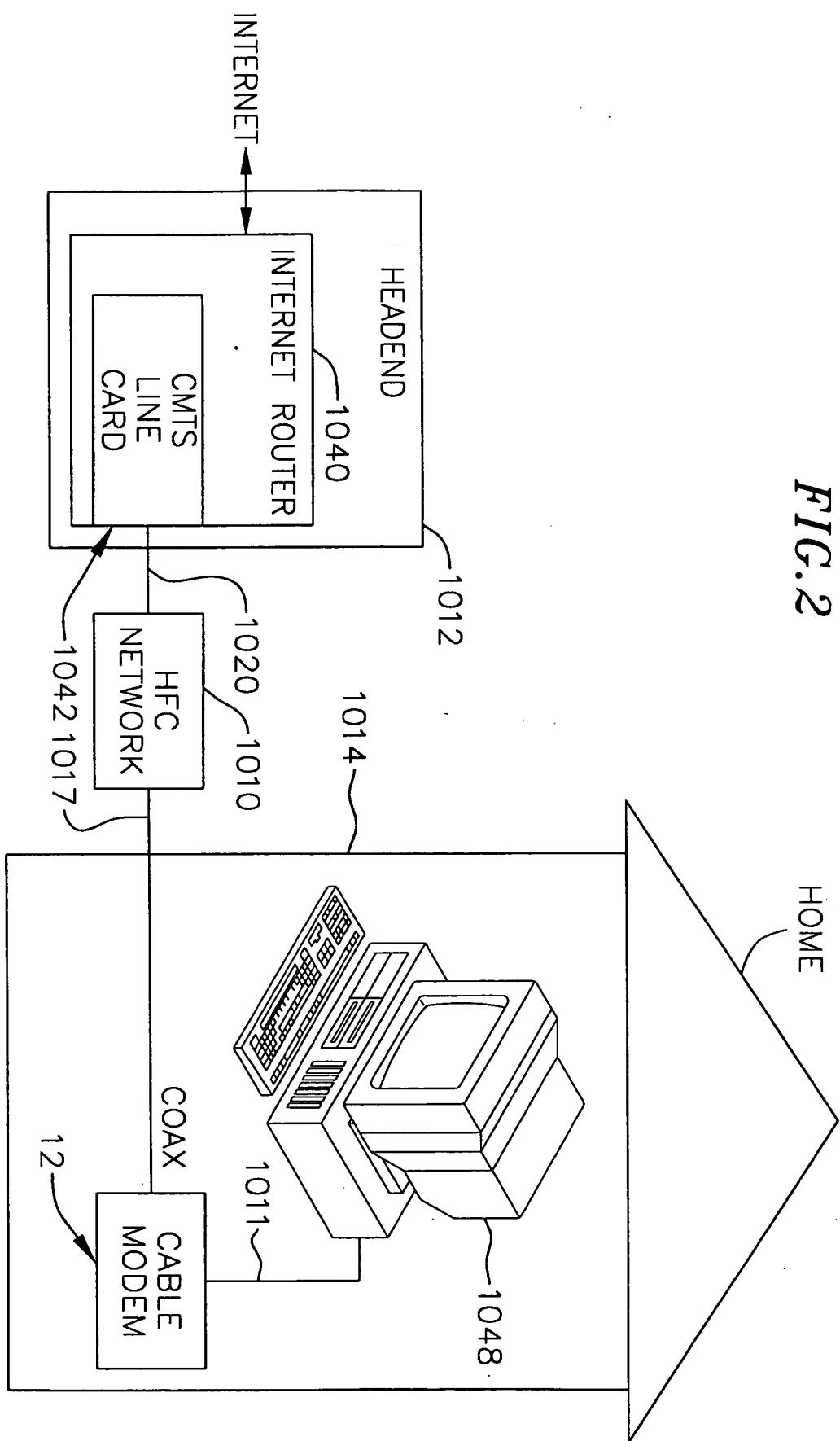


FIG.3

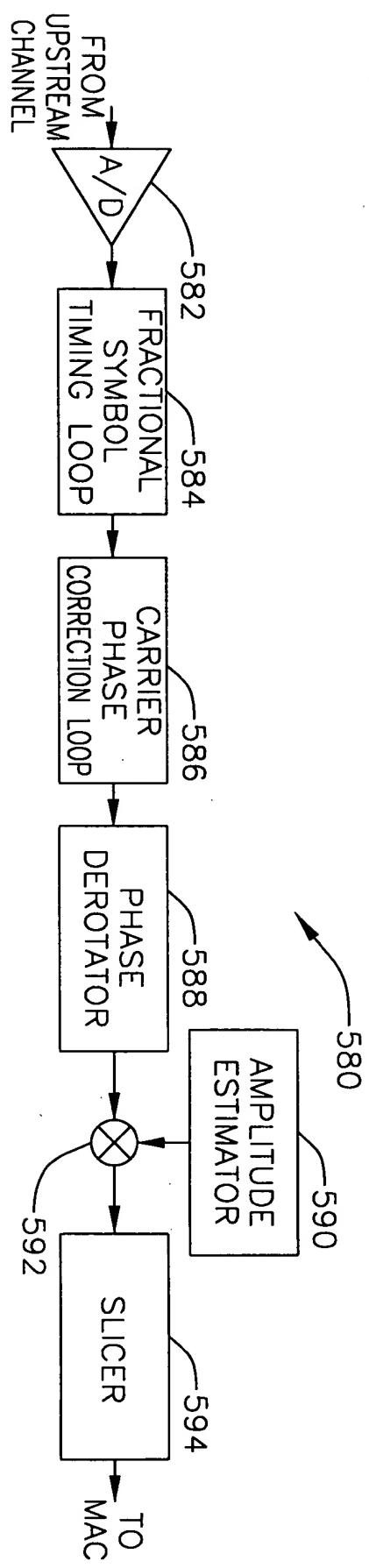
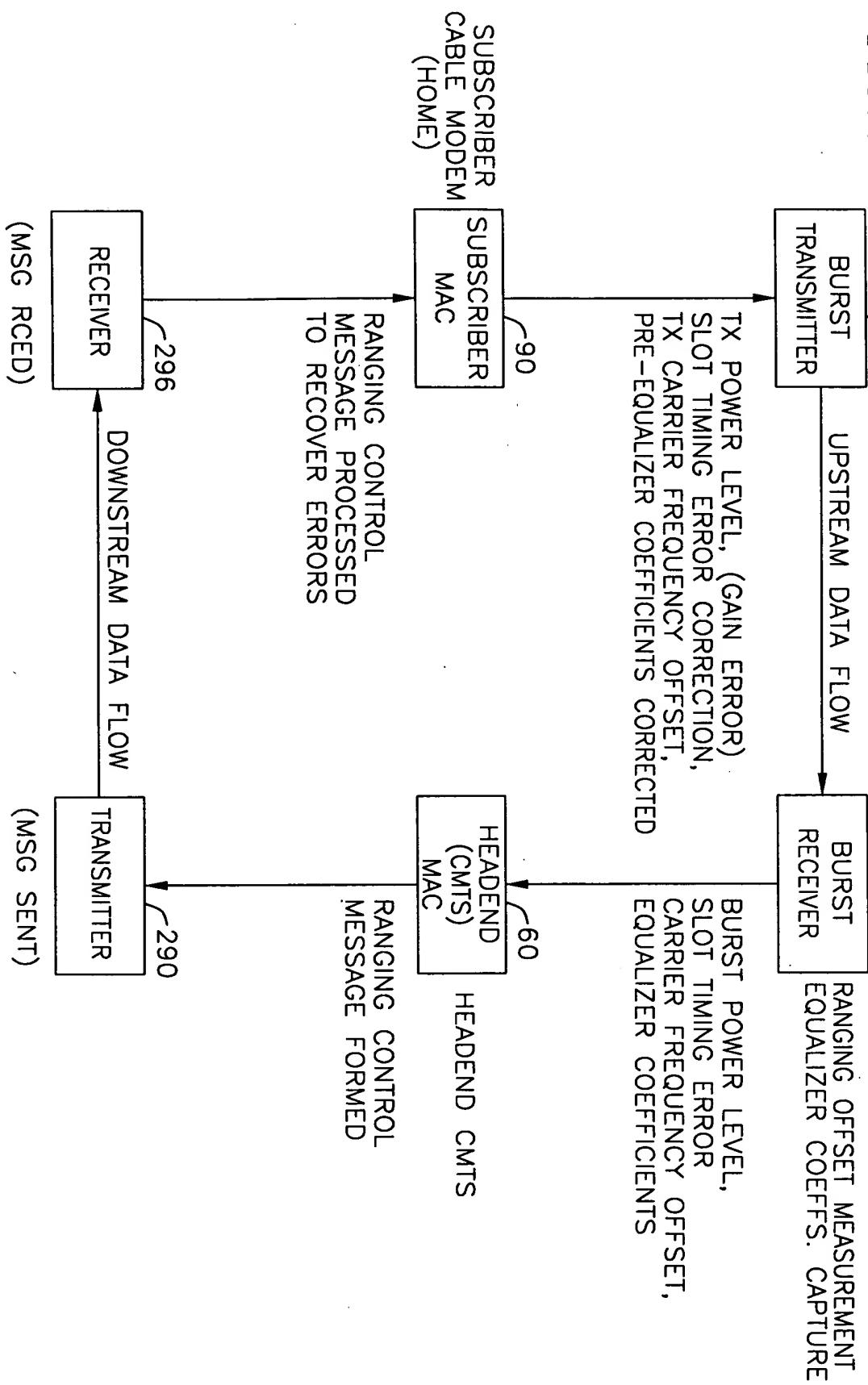


FIG. 4



**FIG.5A**

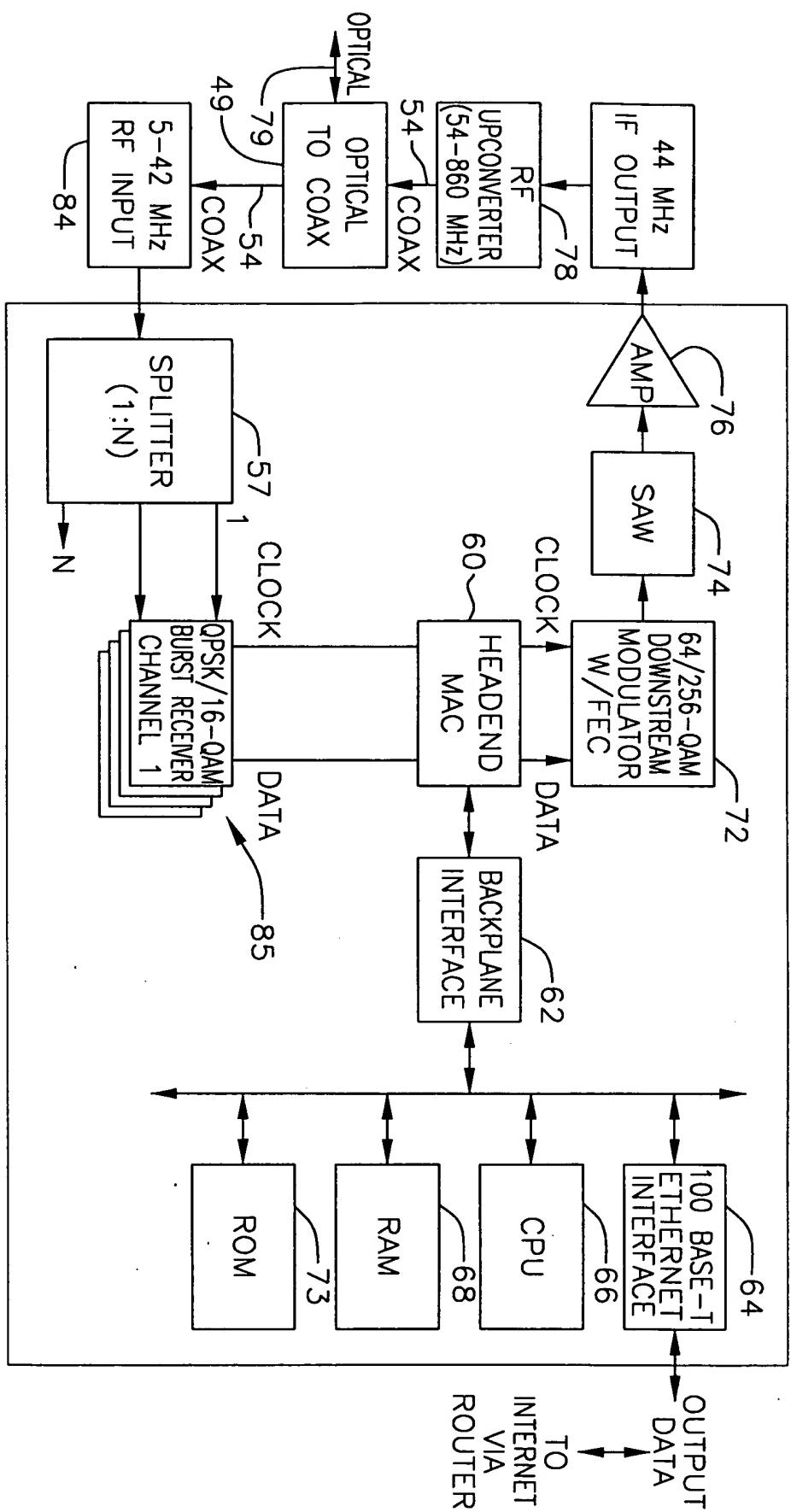


FIG.5B

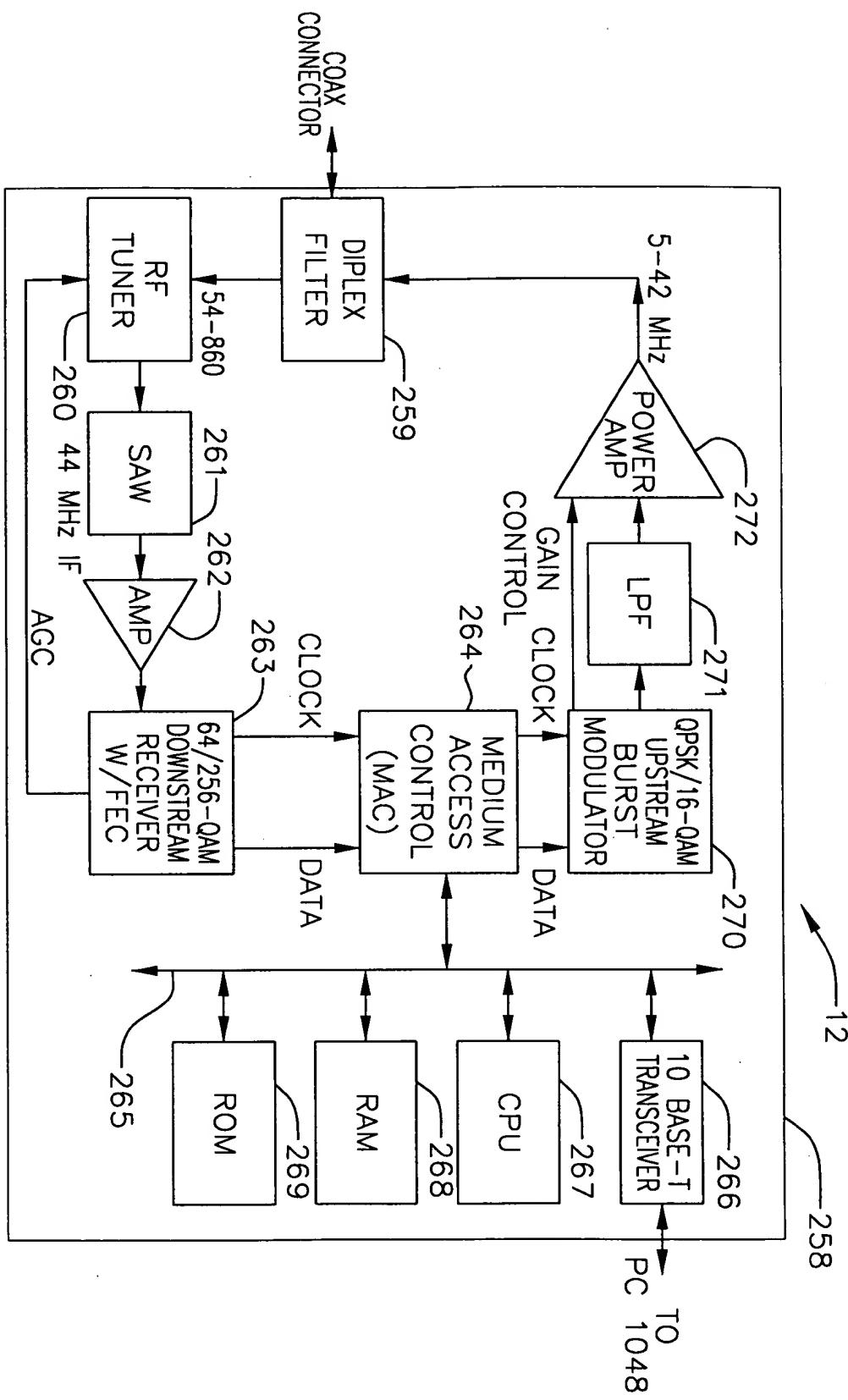


FIG.6A

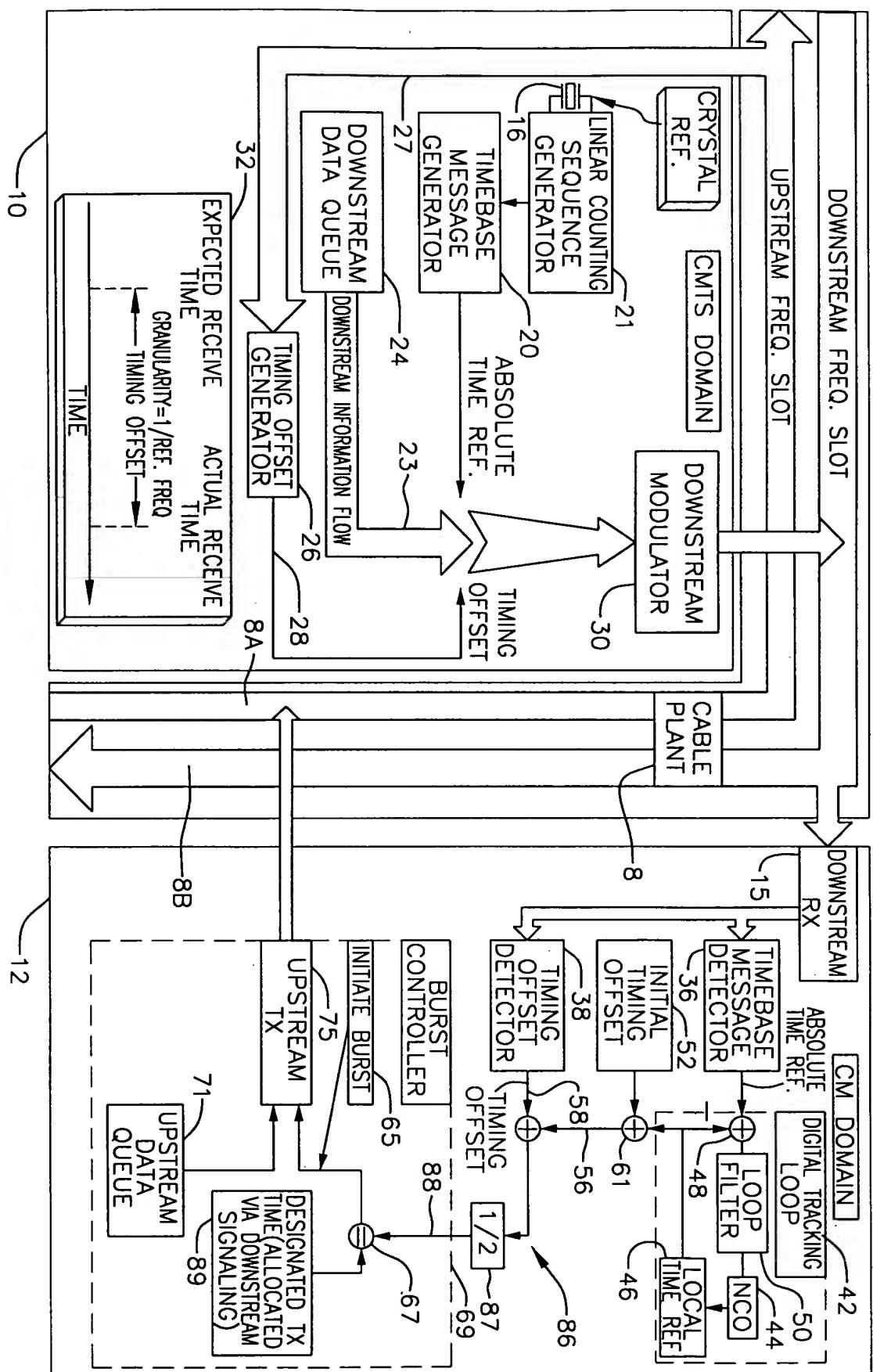


FIG. 6B

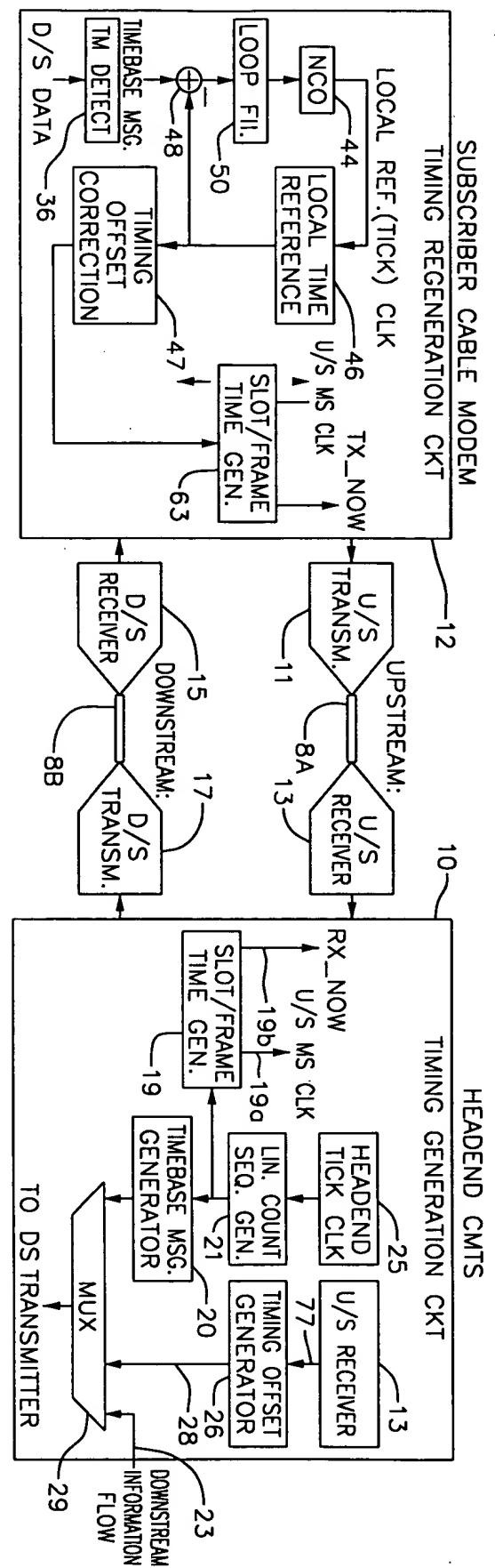


FIG. 6C

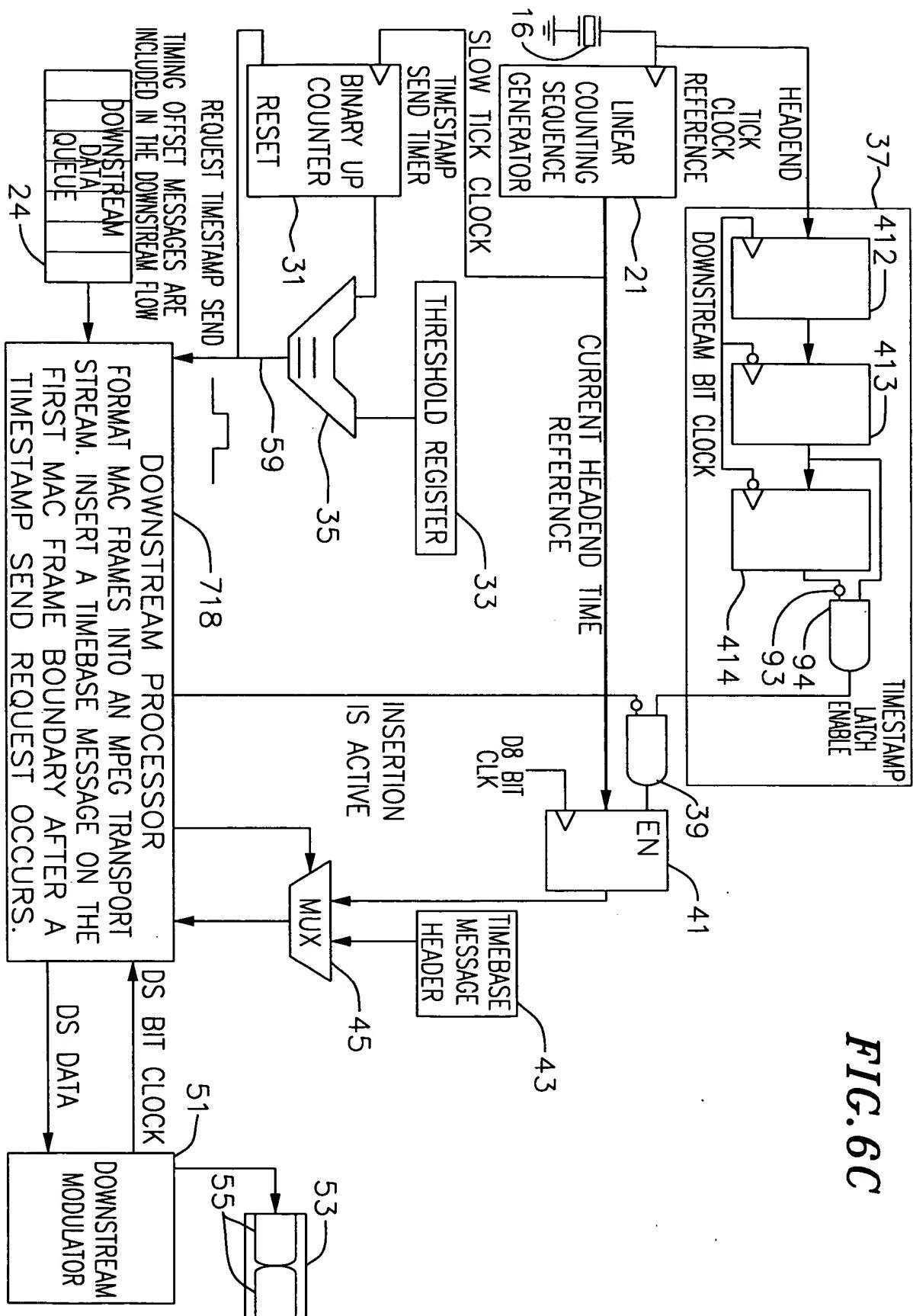
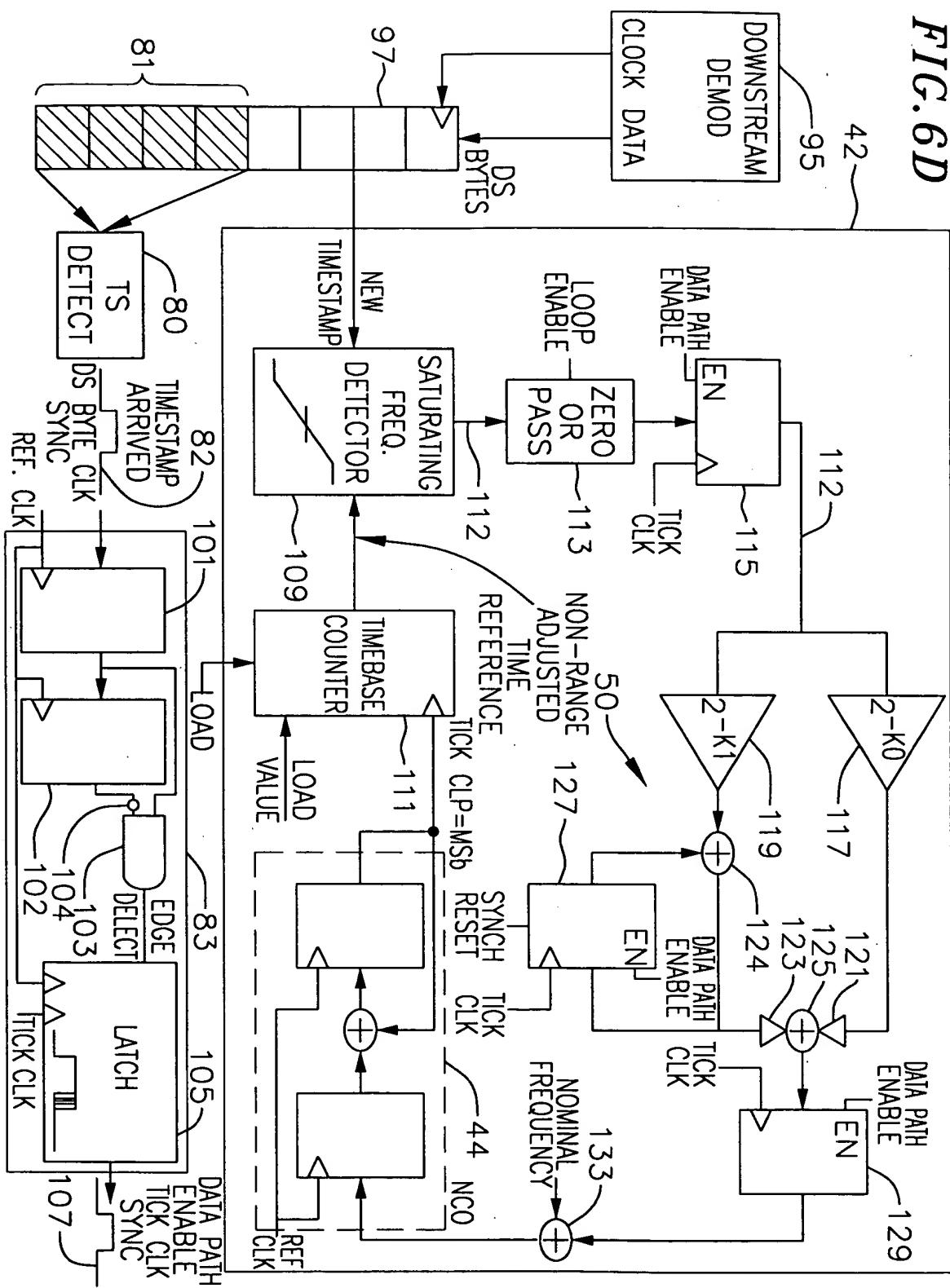


FIG. 6D



UPDATE RATE	COARSE COFFS	FINE COEFFICIENTS
1kHz(1ms)	$K_0=2^{-11}$ $K_1=2^{-15}$	$(BW=50Hz)$ $(BW=1Hz)$
300Hz(3.3ms)	$K_0=2^{-12}$ $K_1=2^{-15}$	$(BW=20Hz)$ $(BW=1Hz)$
100Hz(10ms)	$K_0=2^{-13}$ $K_1=2^{-16}$	$(BW=10Hz)$ $(BW=1Hz)$
50Hz(20ms)	$K_0=2^{-14}$ $K_1=2^{-17}$	$(BW=5Hz)$ $(BW=1Hz)$
30Hz(33ms)	$K_0=2^{-15}$ $K_1=2^{-18}$	$(BW=3Hz)$ $(BW=1Hz)$
10Hz(100ms)	$K_0=2^{-17}$ $K_1=2^{-20}$	$(BW=1Hz)$ $(BW=1Hz)$
5Hz(200ms)	$K_0=2^{-18}$ $K_1=2^{-20}$	$(BW=1Hz)$ $(BW=1Hz)$

FIG.6E

FIG. 7A

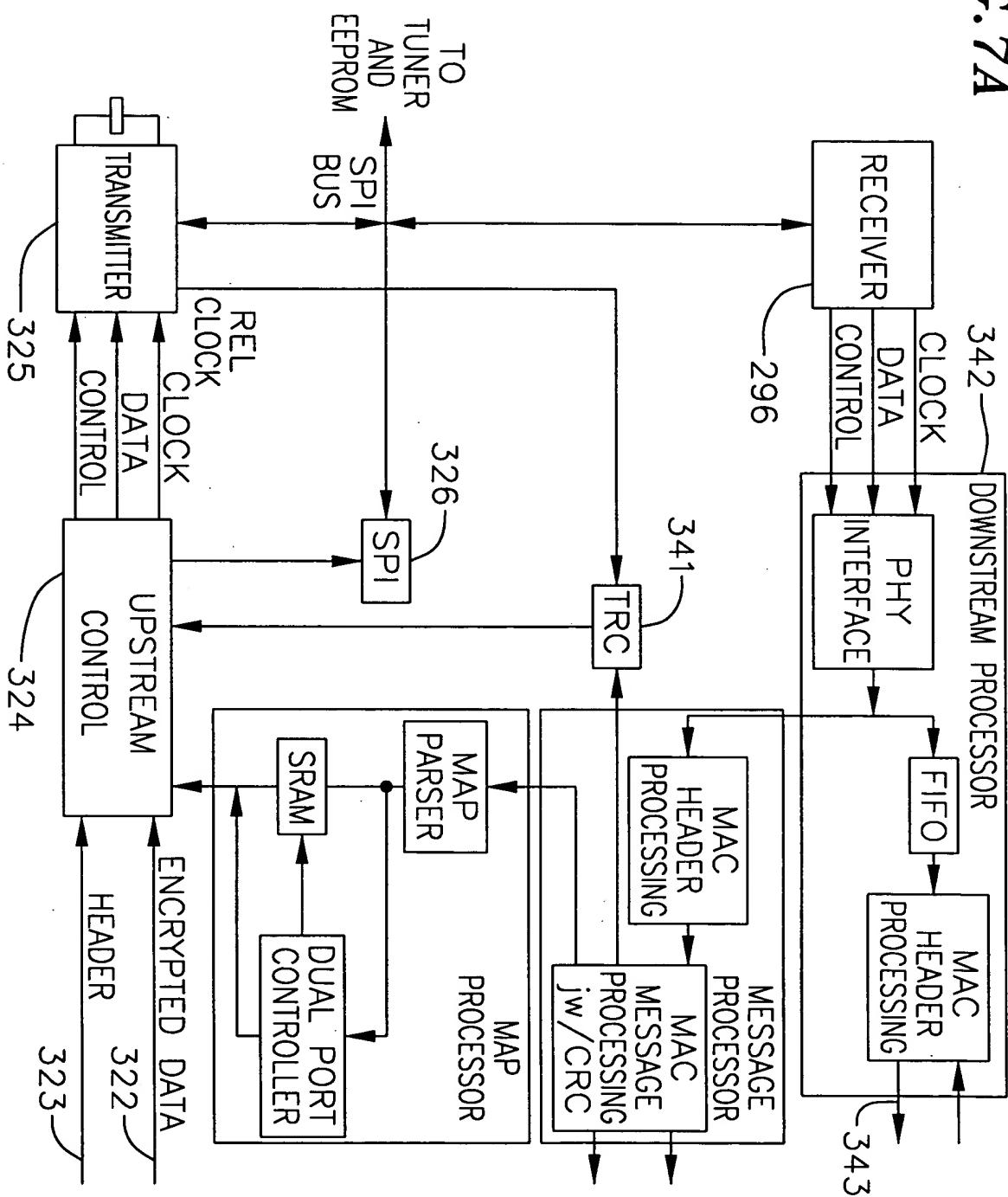


FIG. 7B

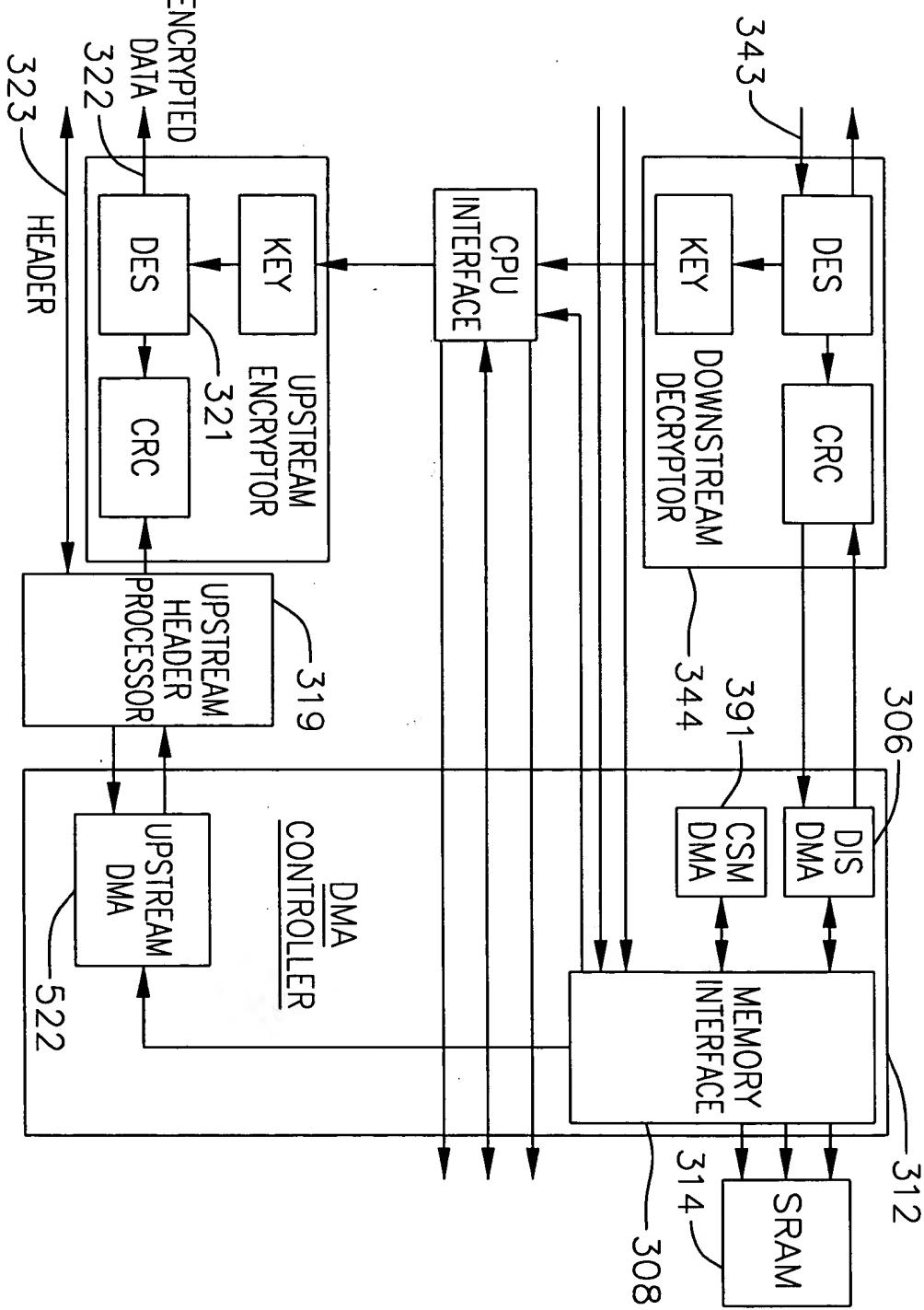
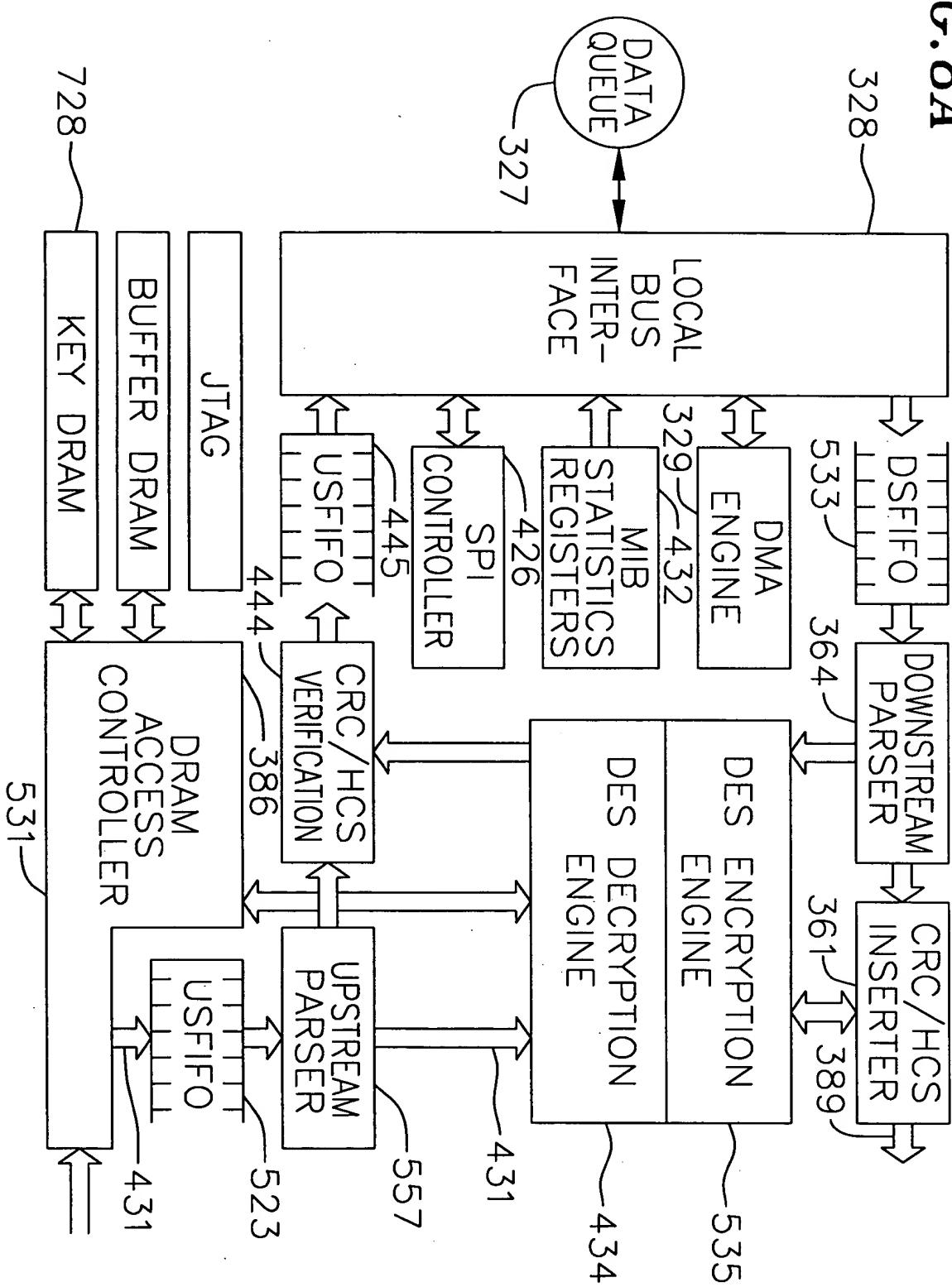


FIG. 8A



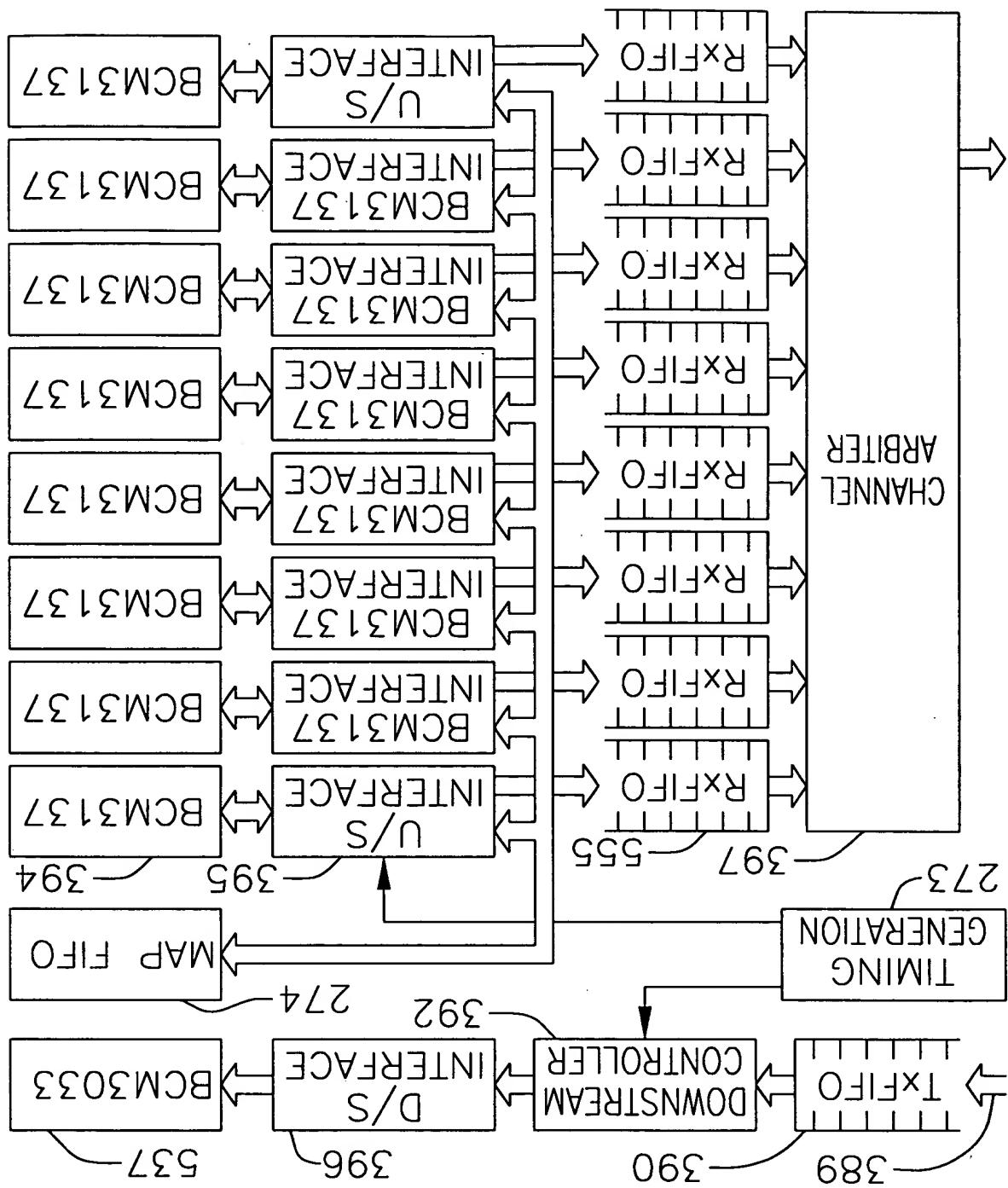


FIG. 8B

FIG. 9

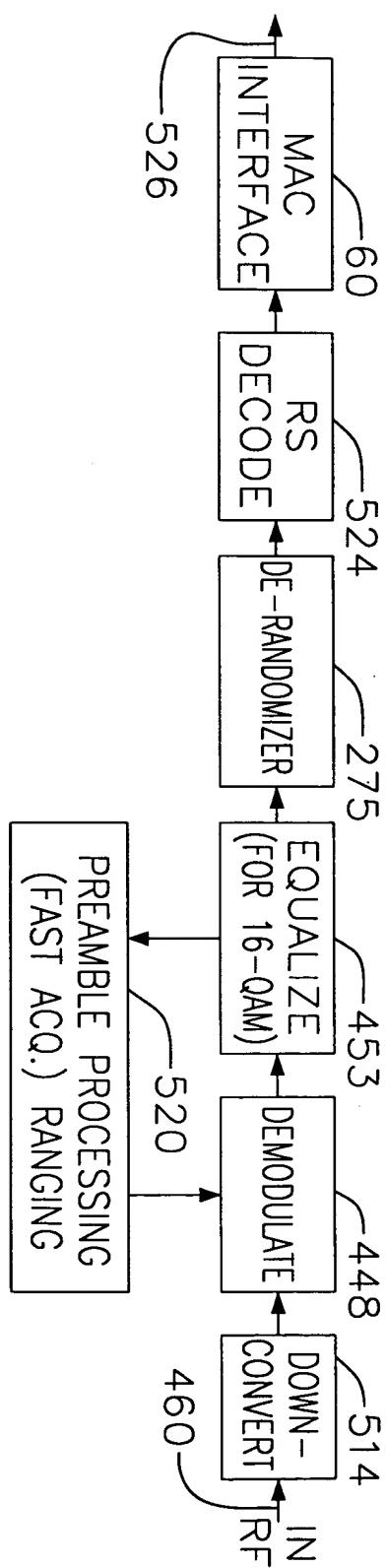
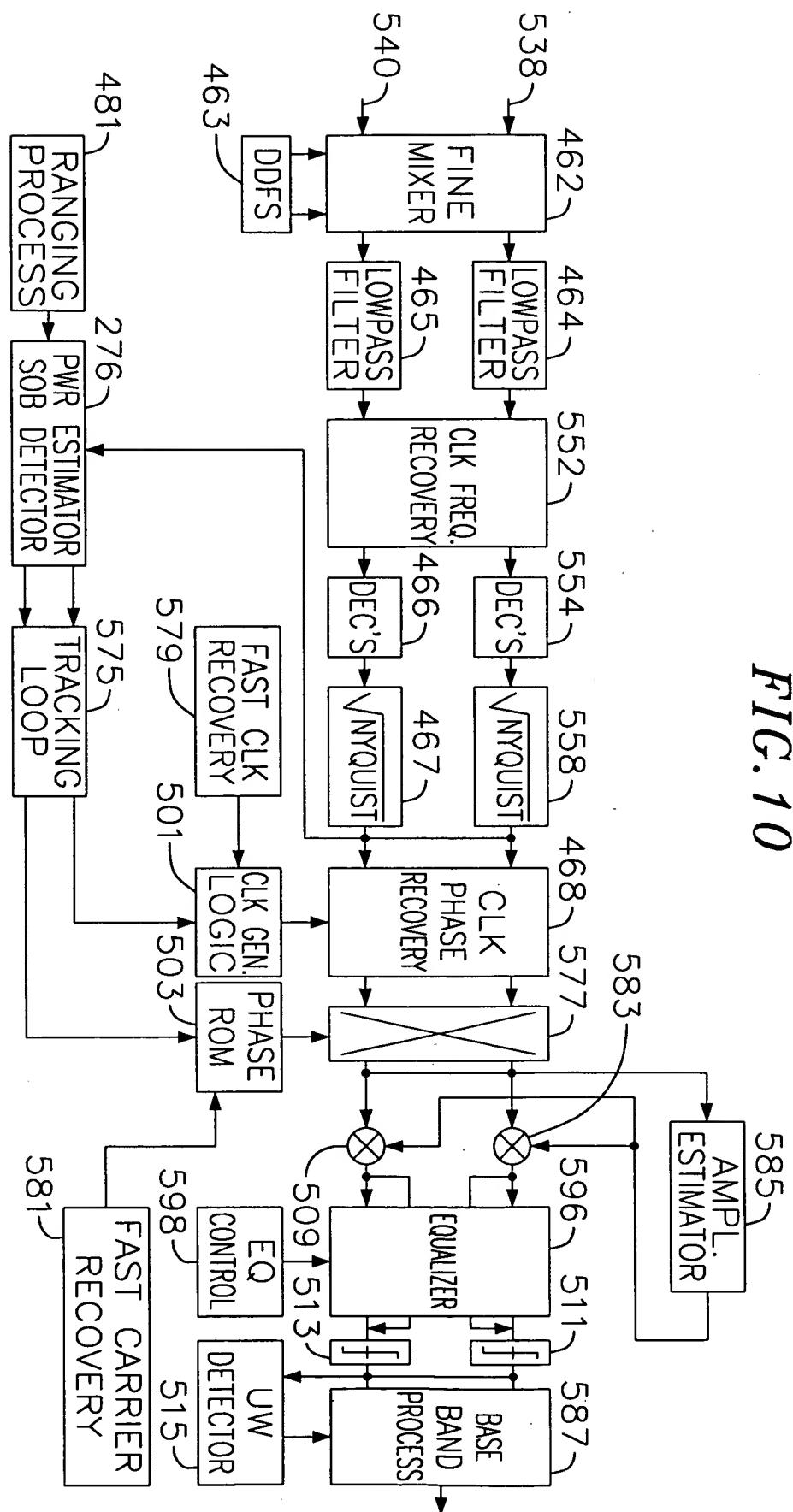


FIG. 10



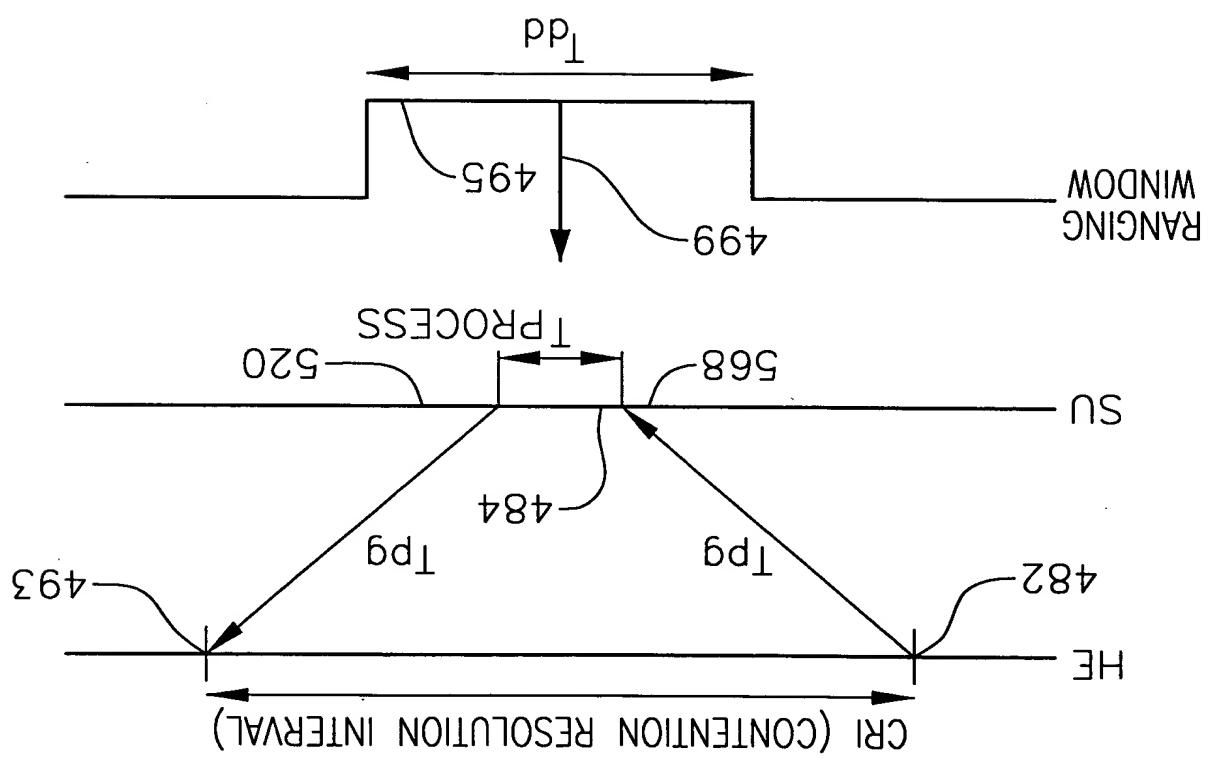
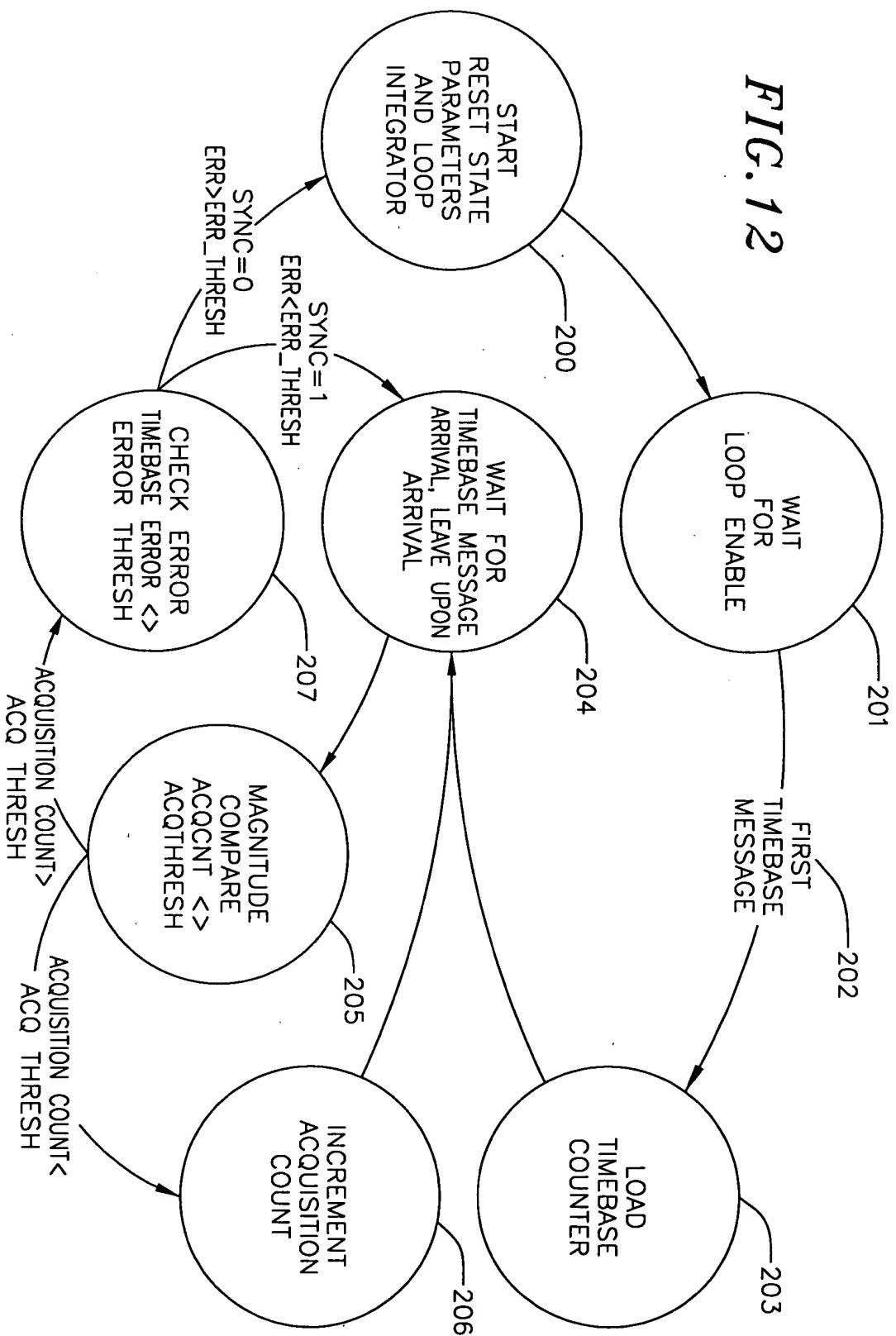


FIG. 11

FIG. 12



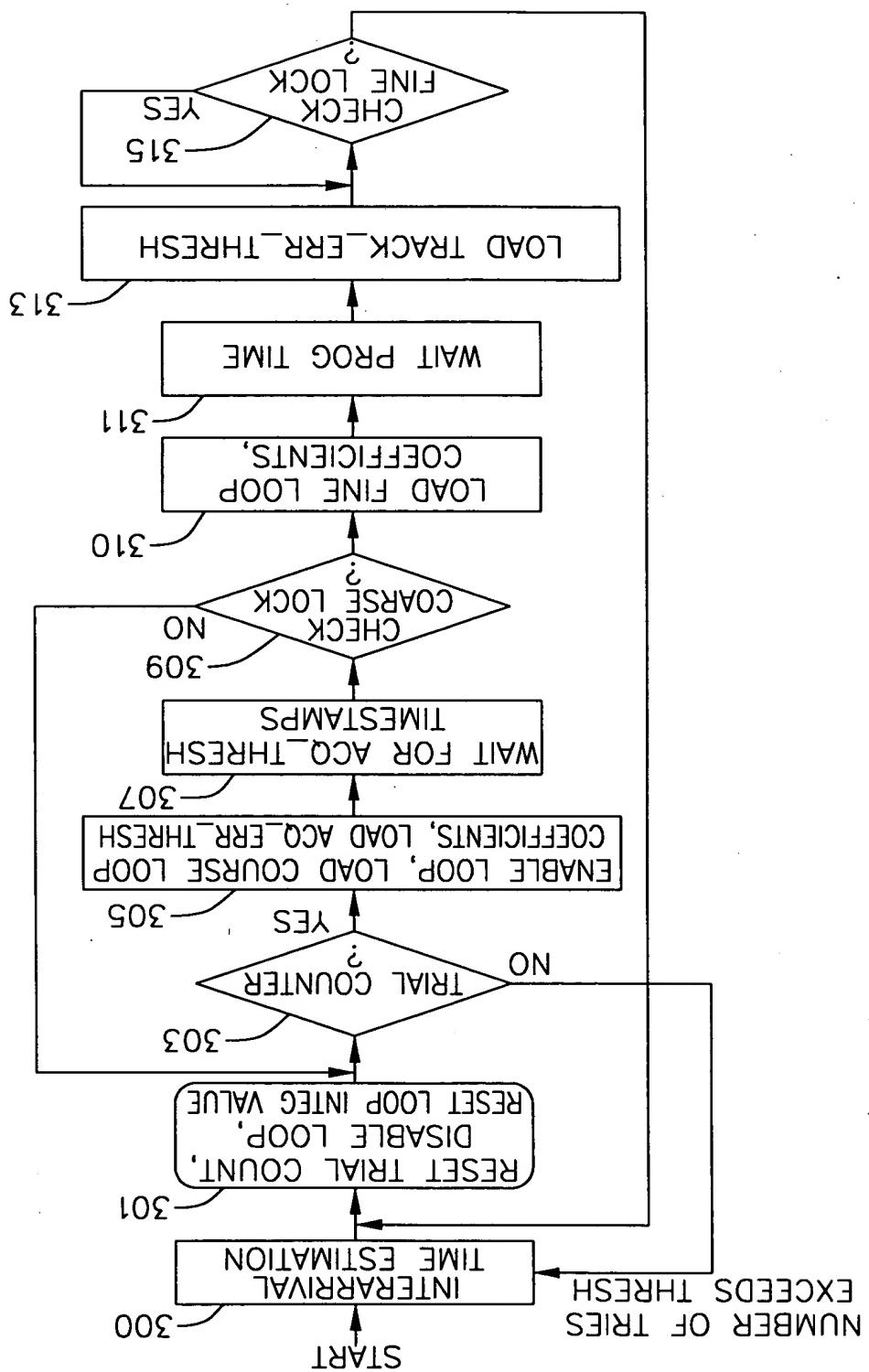


FIG. 13

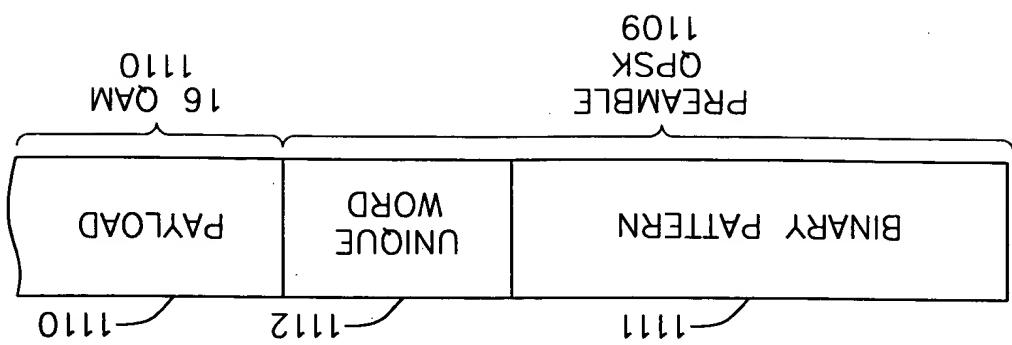


FIG. 17

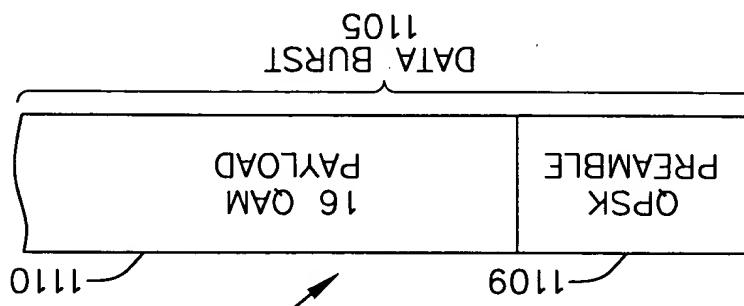


FIG. 16

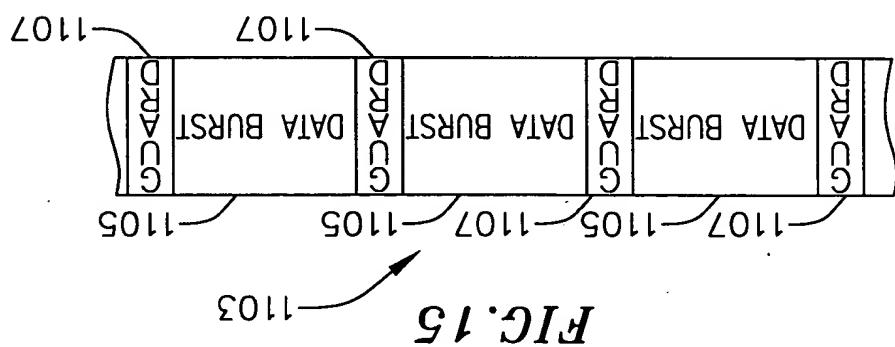


FIG. 15

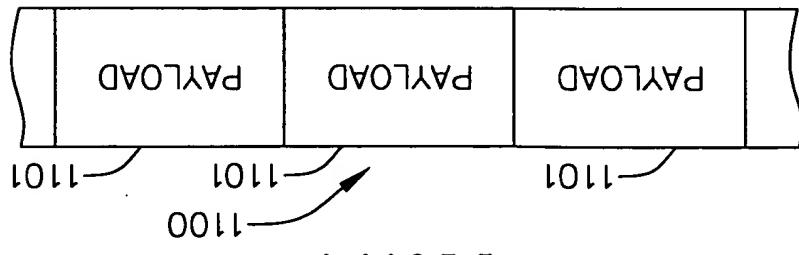


FIG. 14

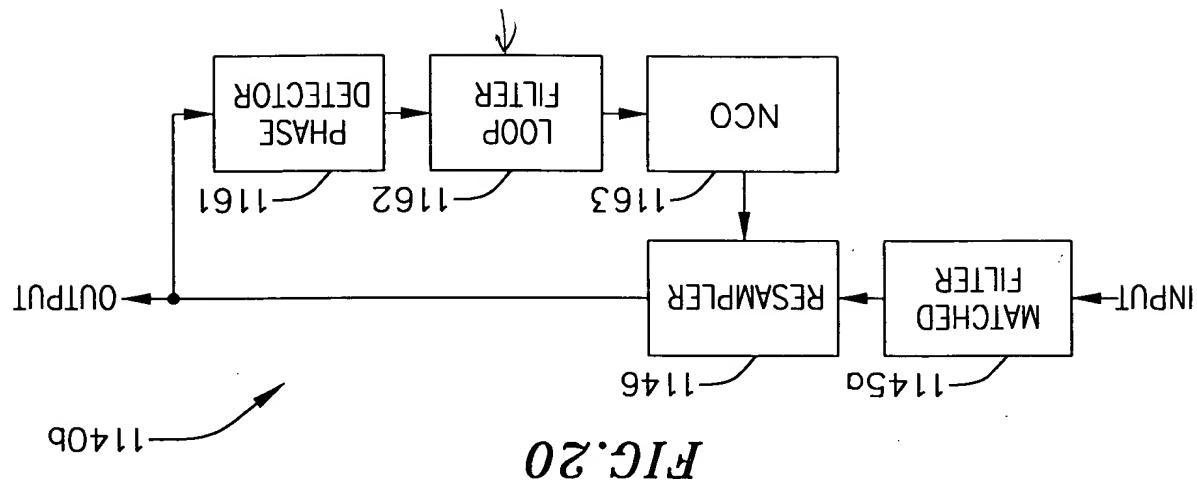


FIG. 20

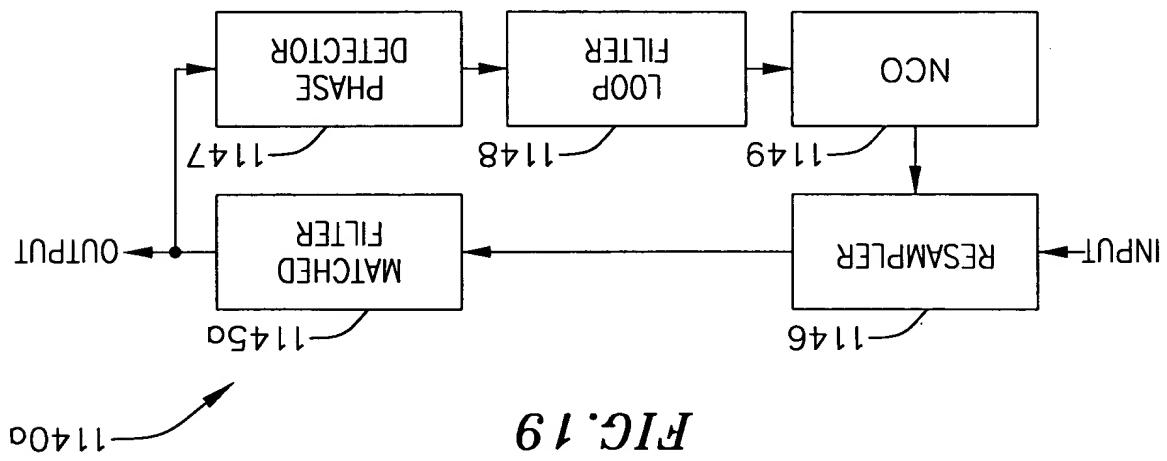


FIG. 19

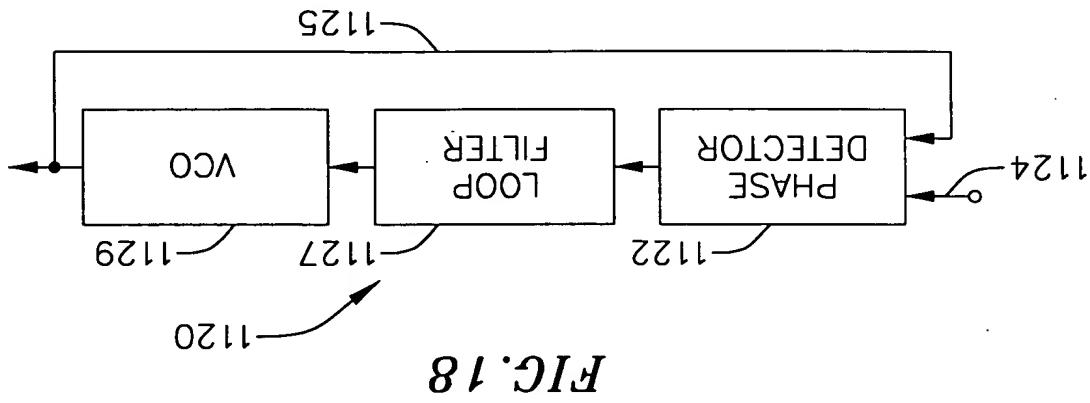


FIG. 18

FIG.21

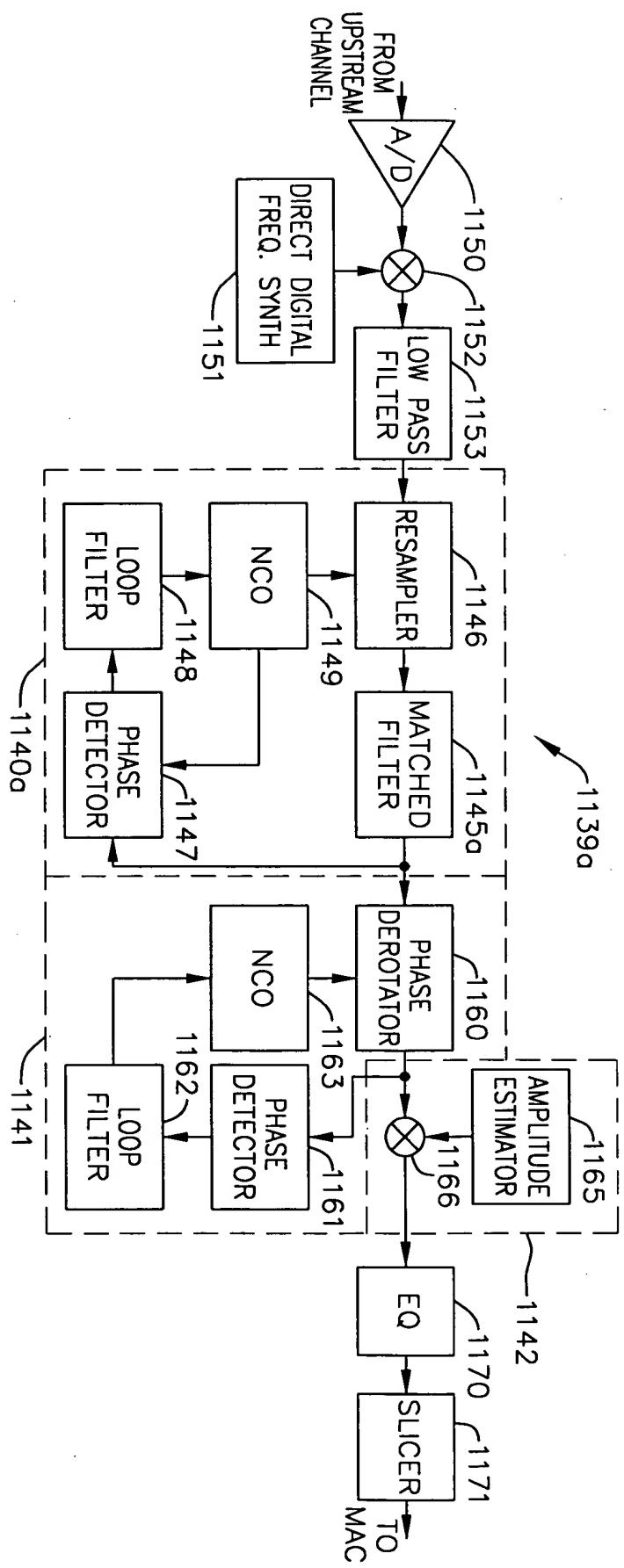
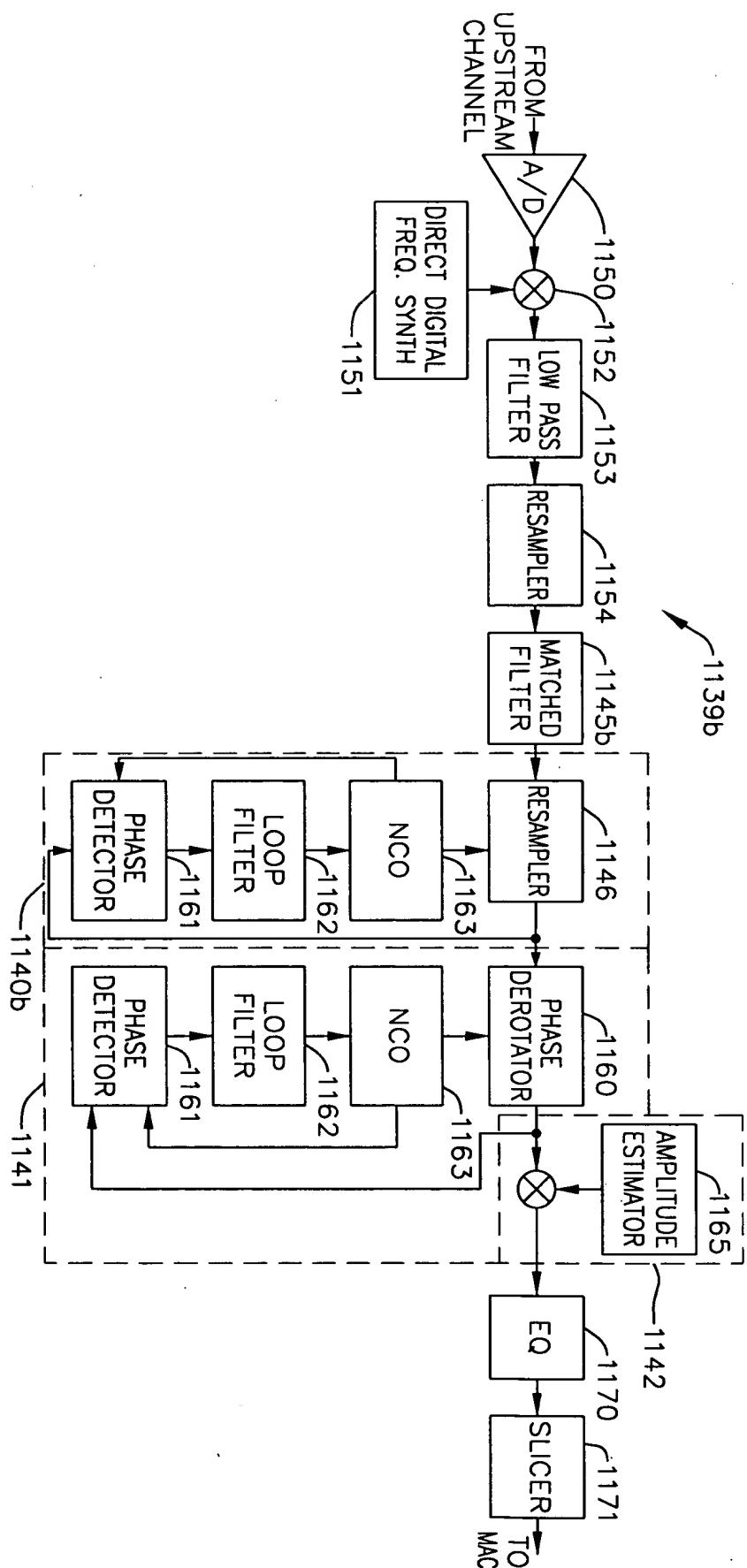


FIG. 22



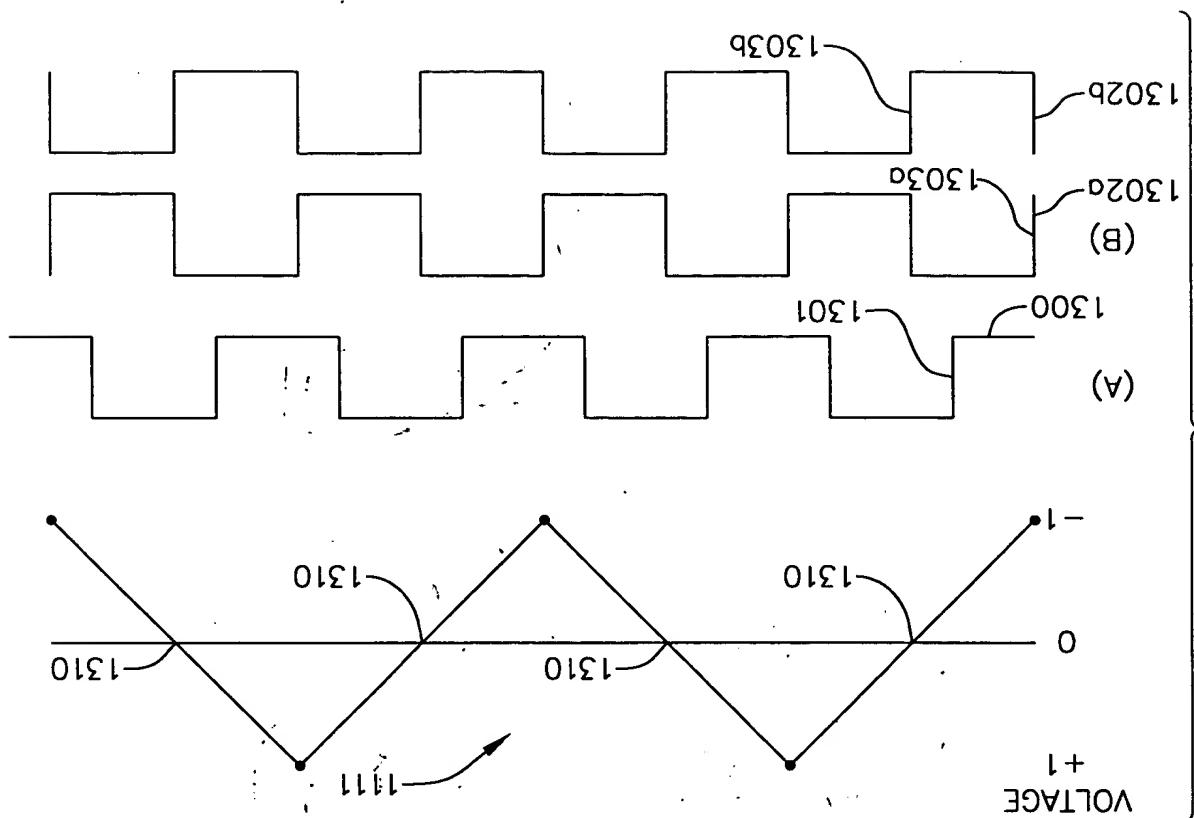


FIG. 24

0 9 5 8 4 2 3 2 - 3 0 0 5 0 0

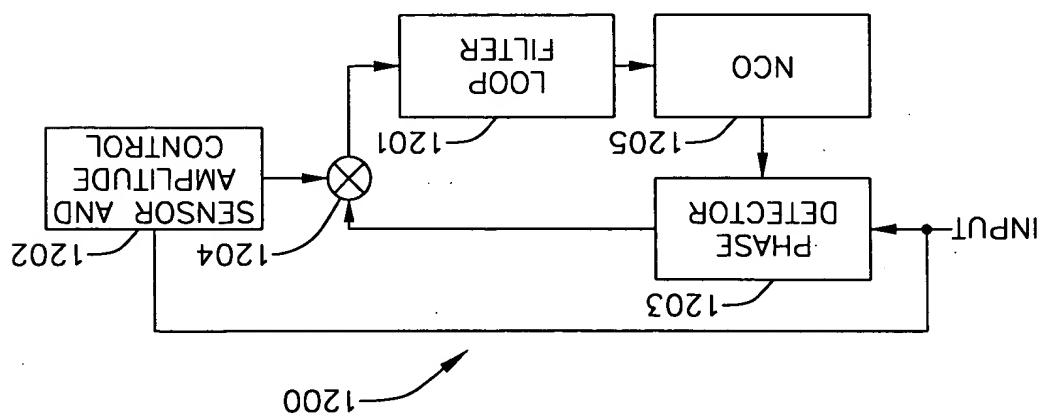


FIG. 23

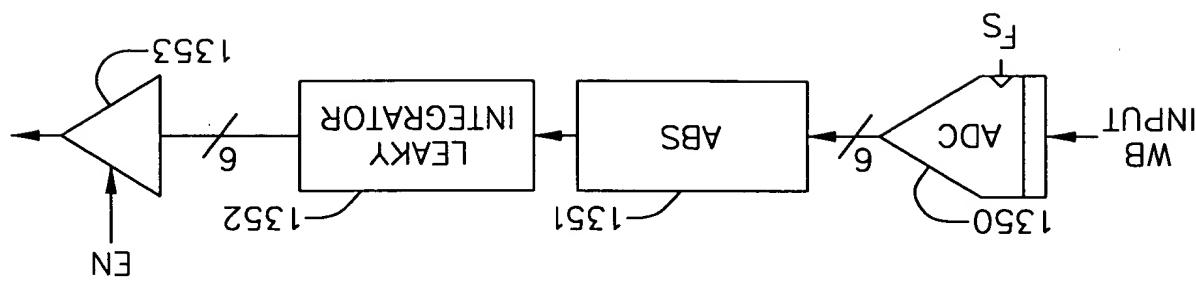


FIG.25B

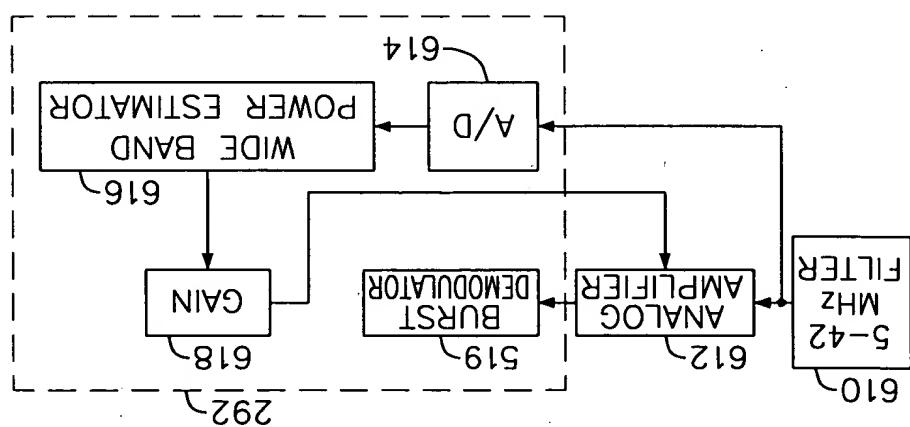


FIG.25A

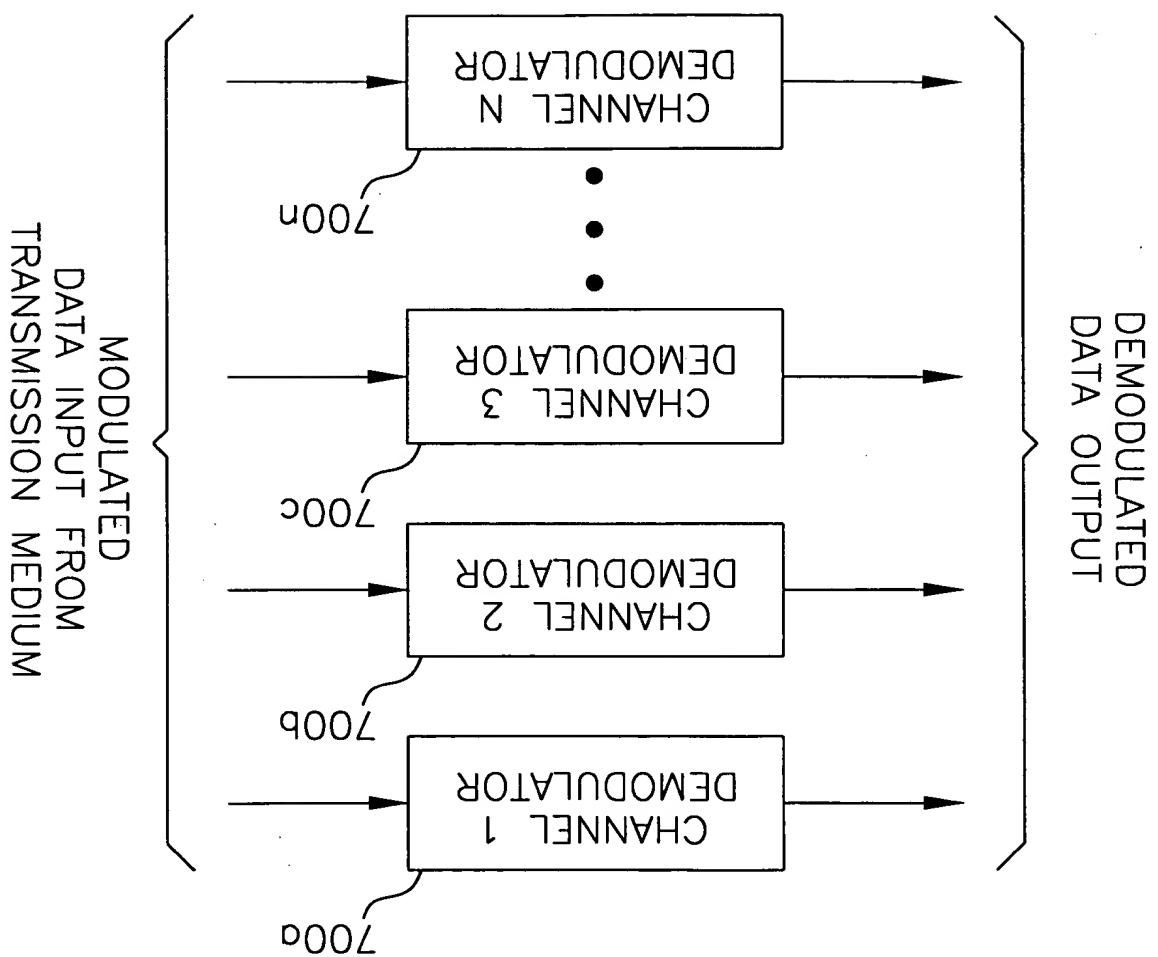


FIG.26

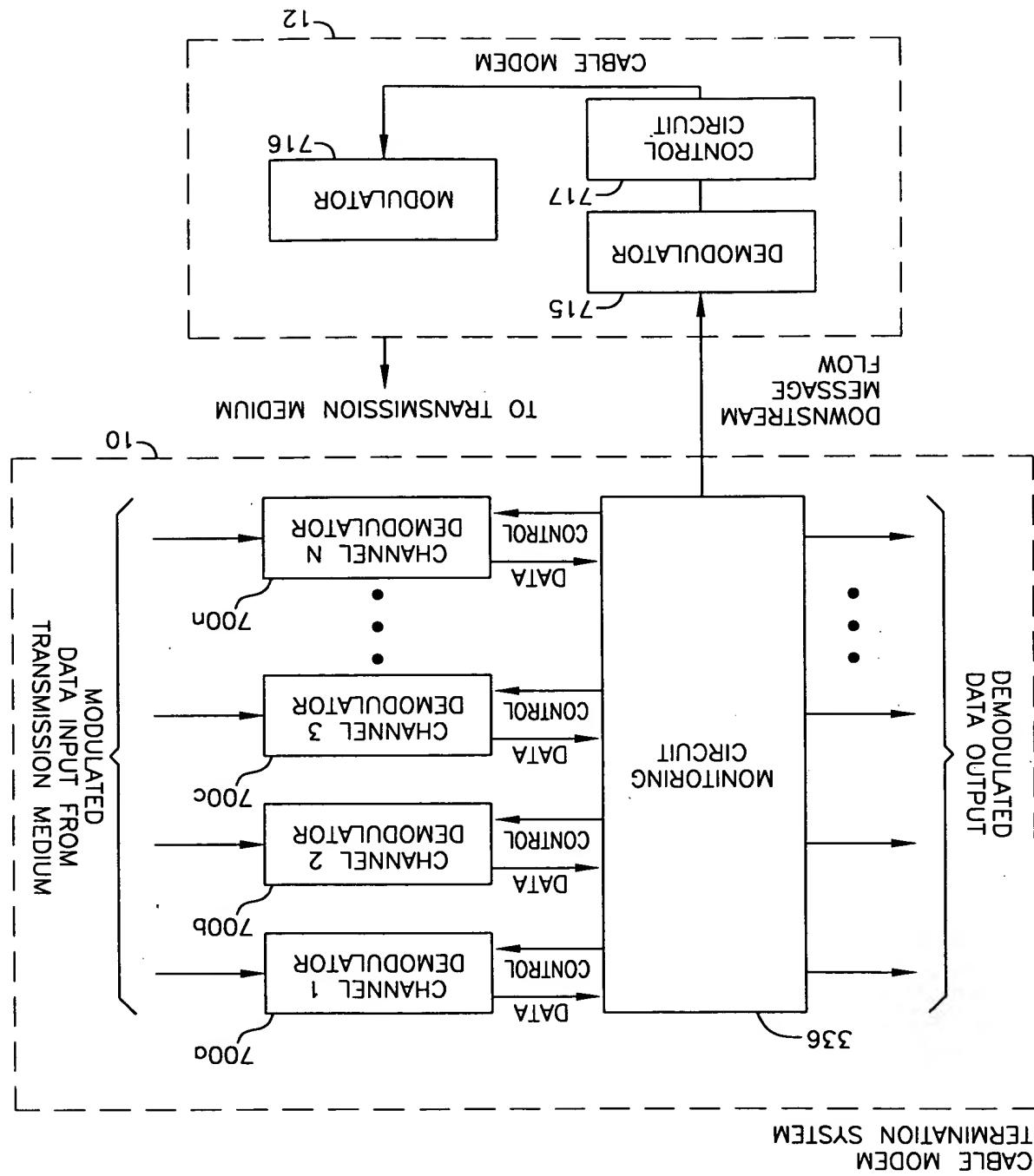


FIG. 27

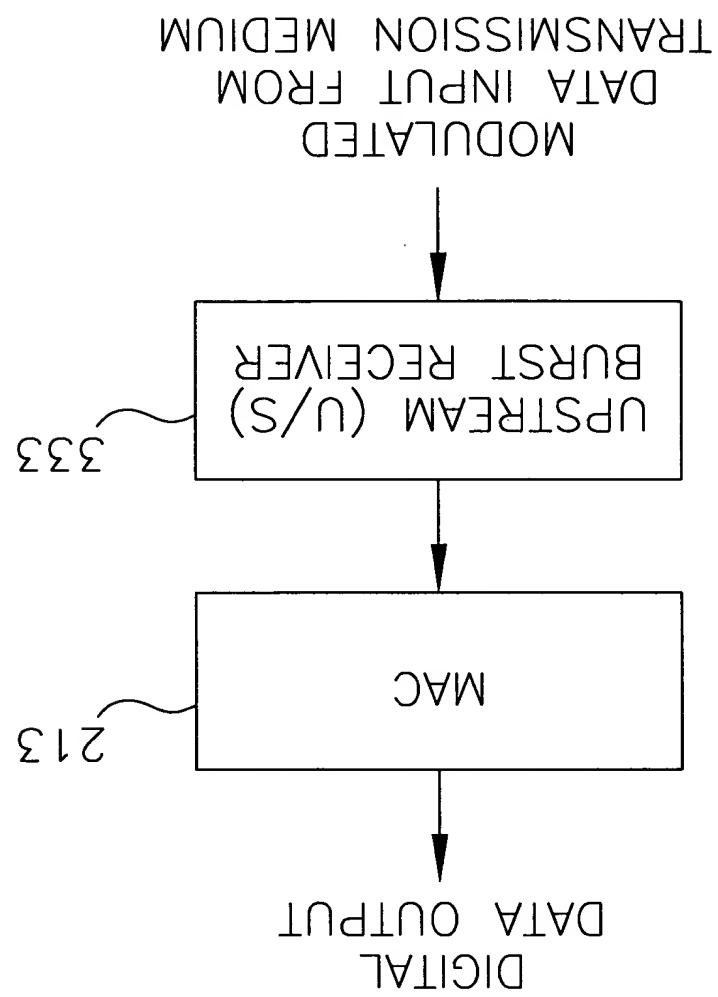


FIG.28

FIG. 29

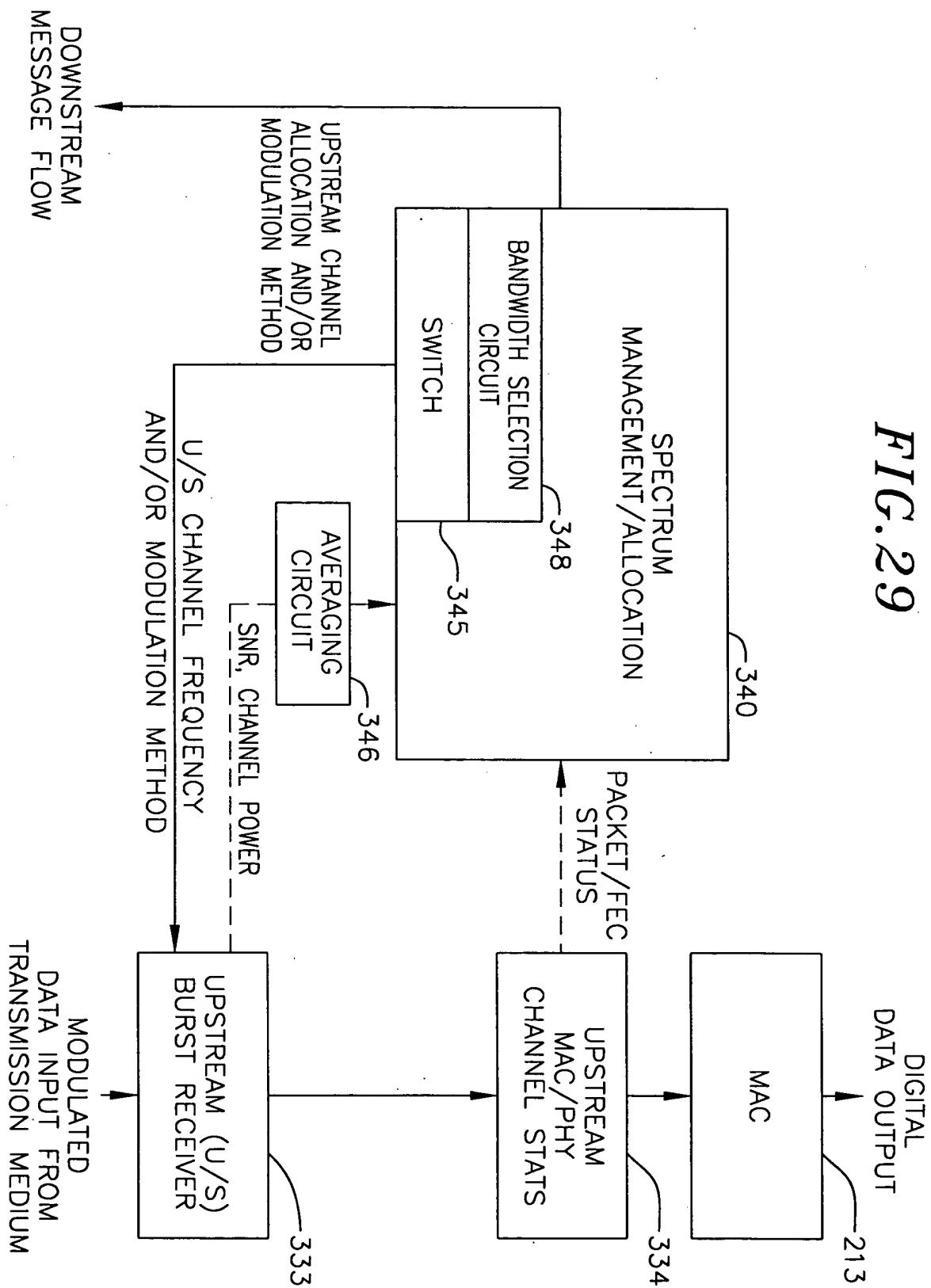


FIG. 30

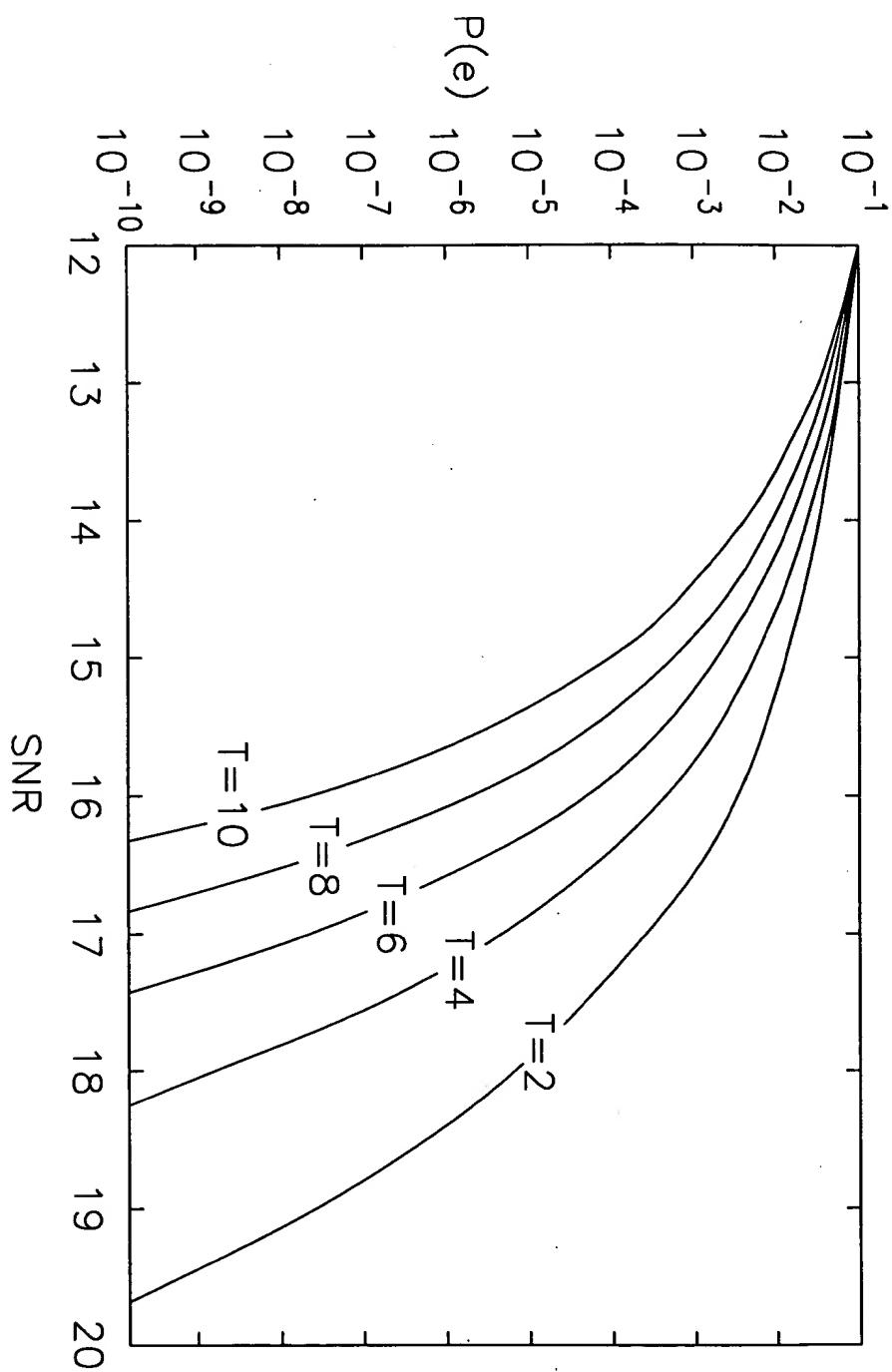


FIG. 31

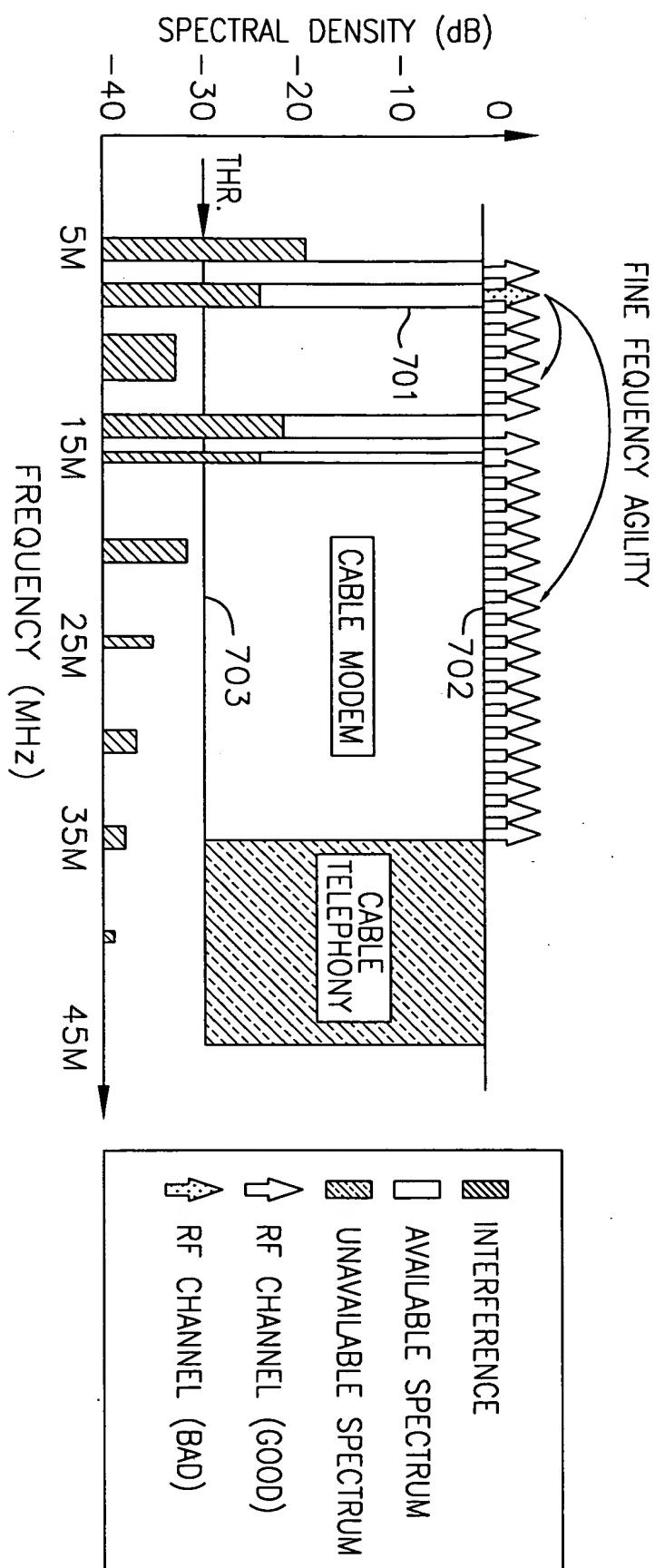


FIG. 32

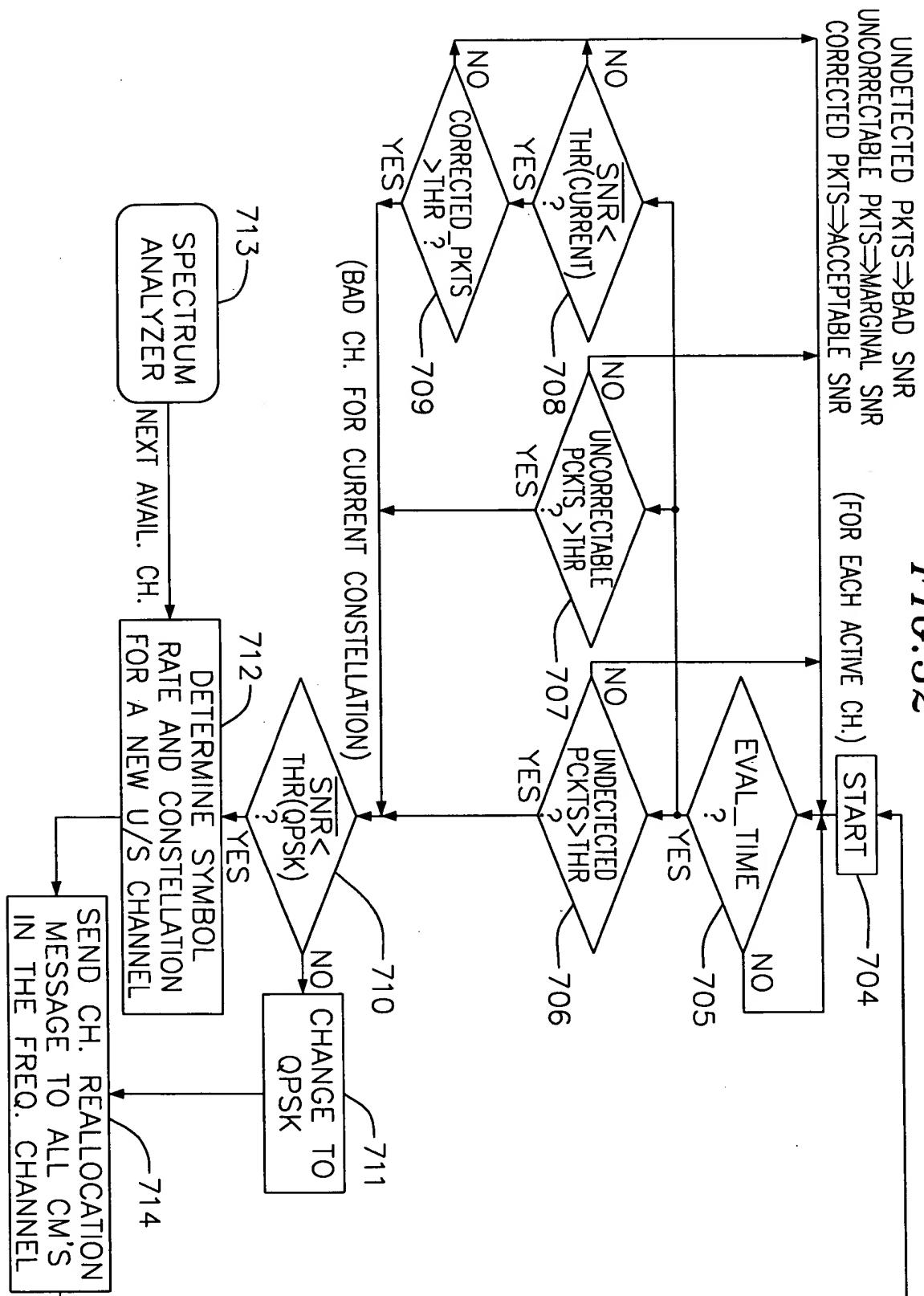


FIG. 33

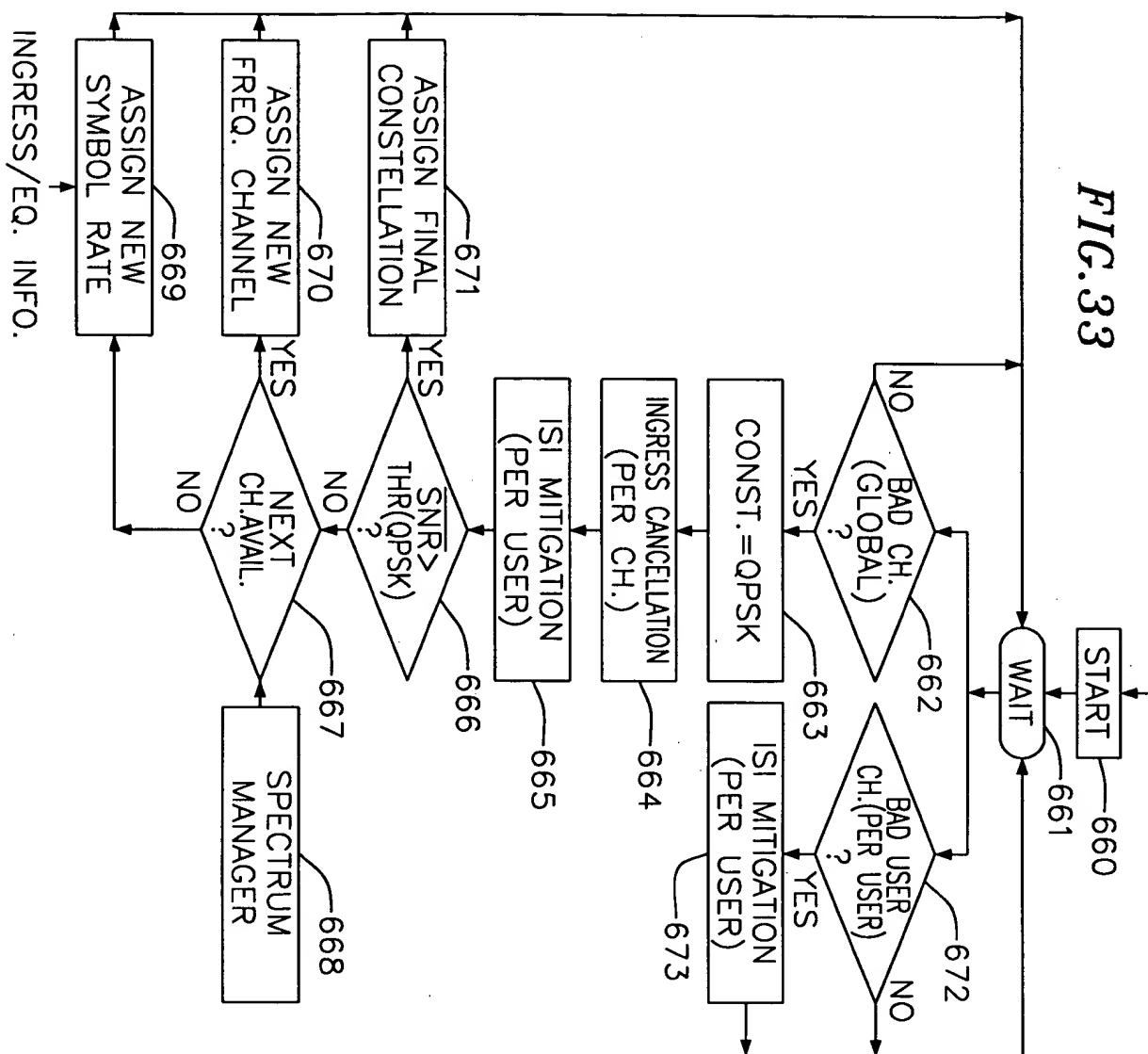


FIG. 34

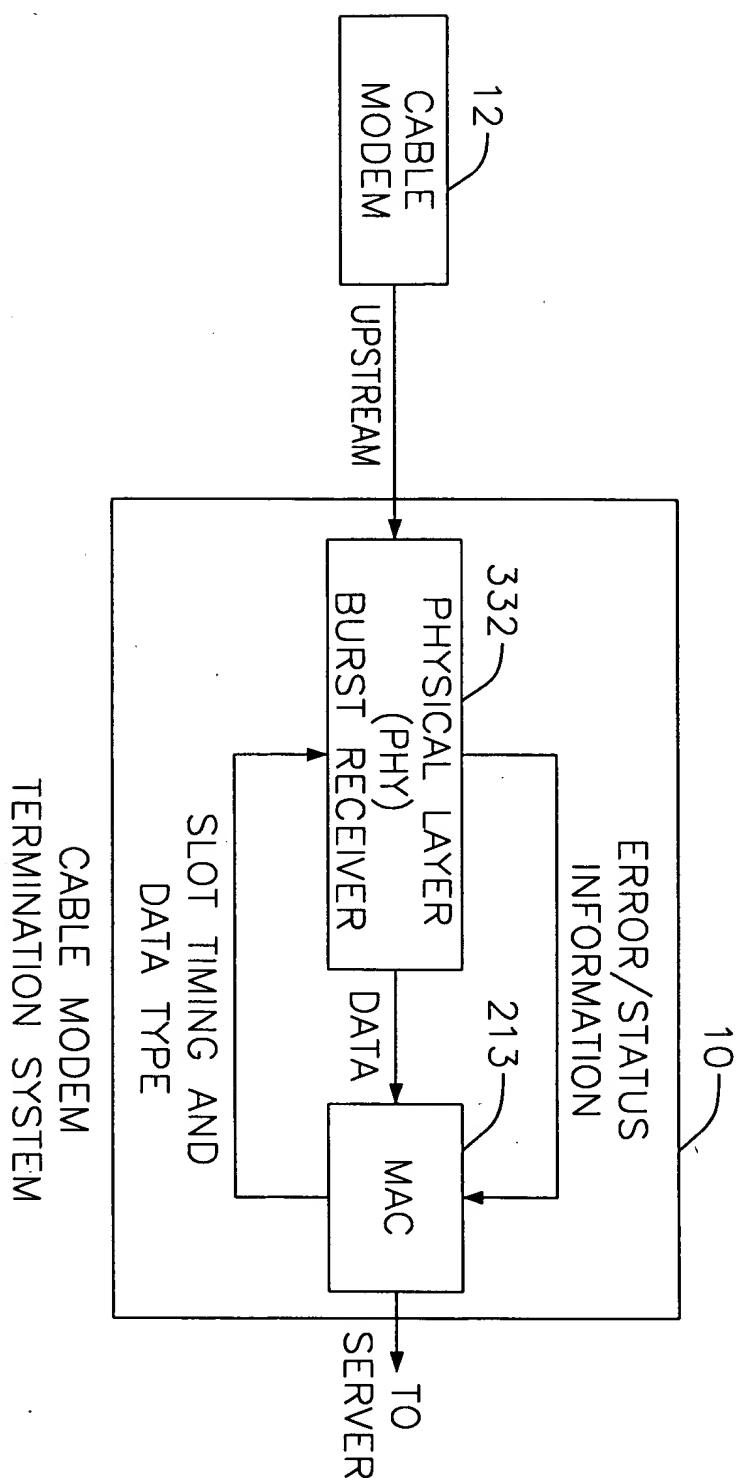


FIG.35

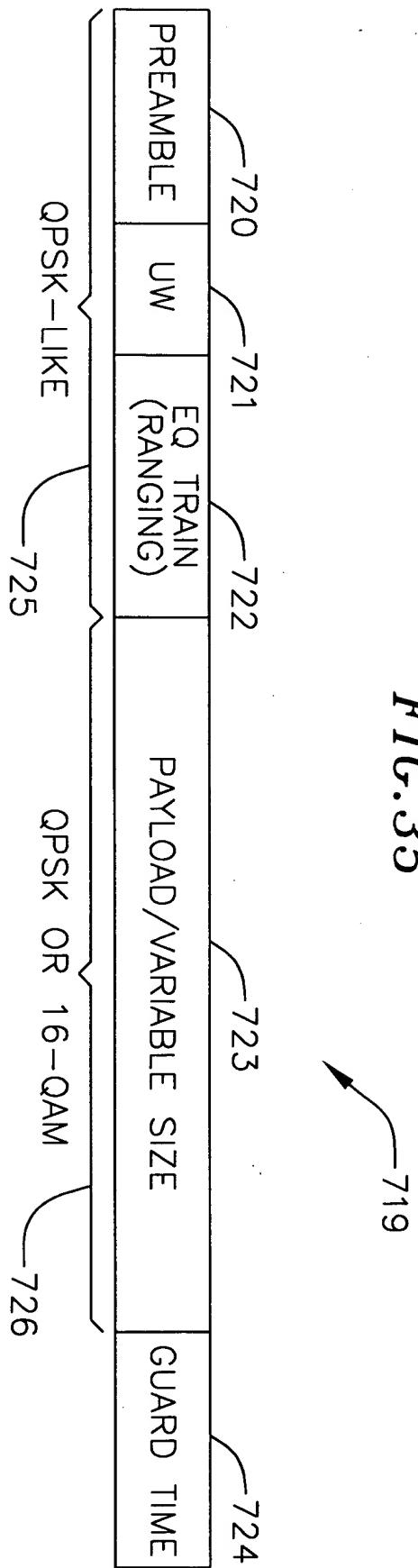


FIG.36

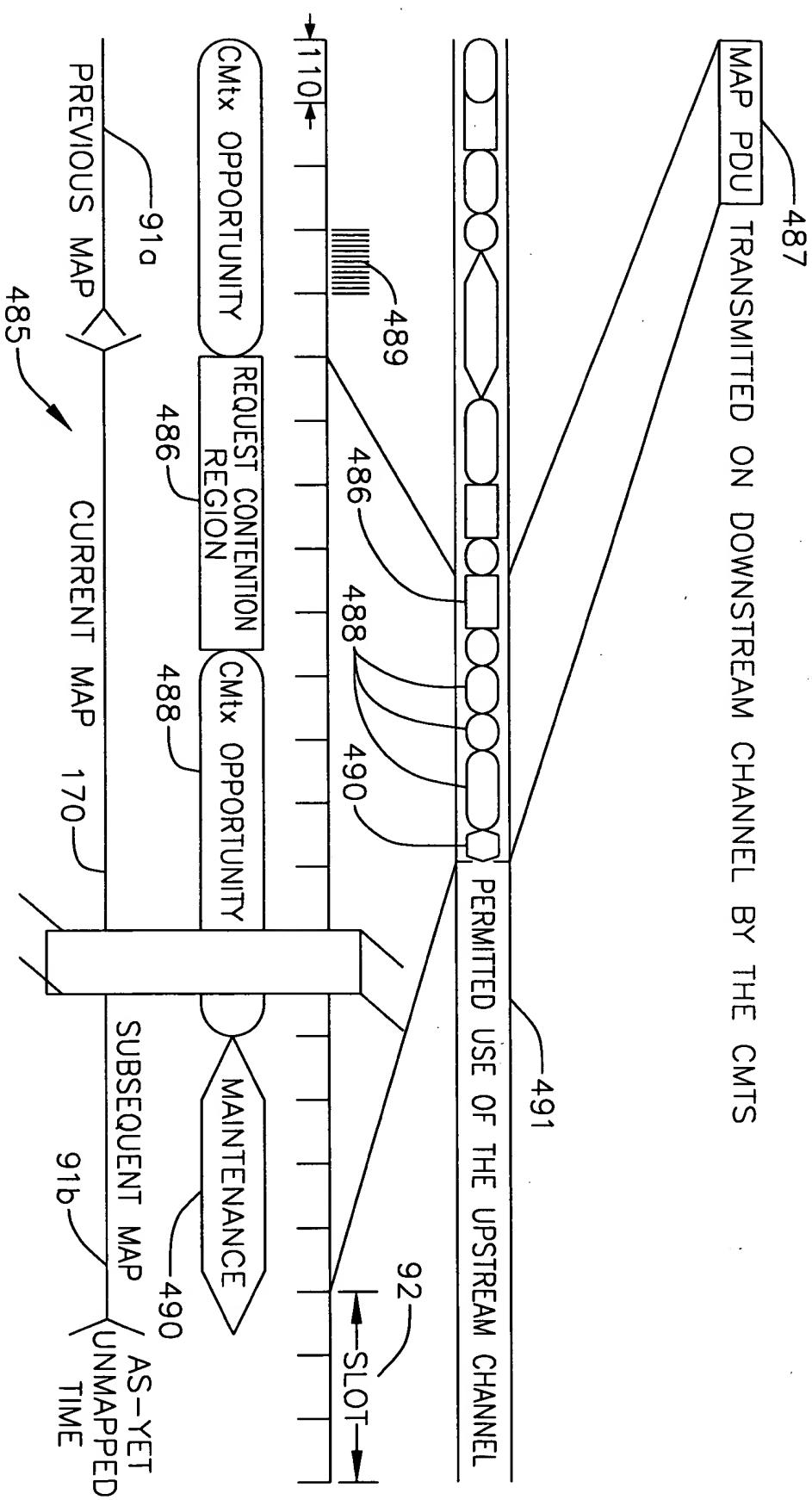


FIG.37

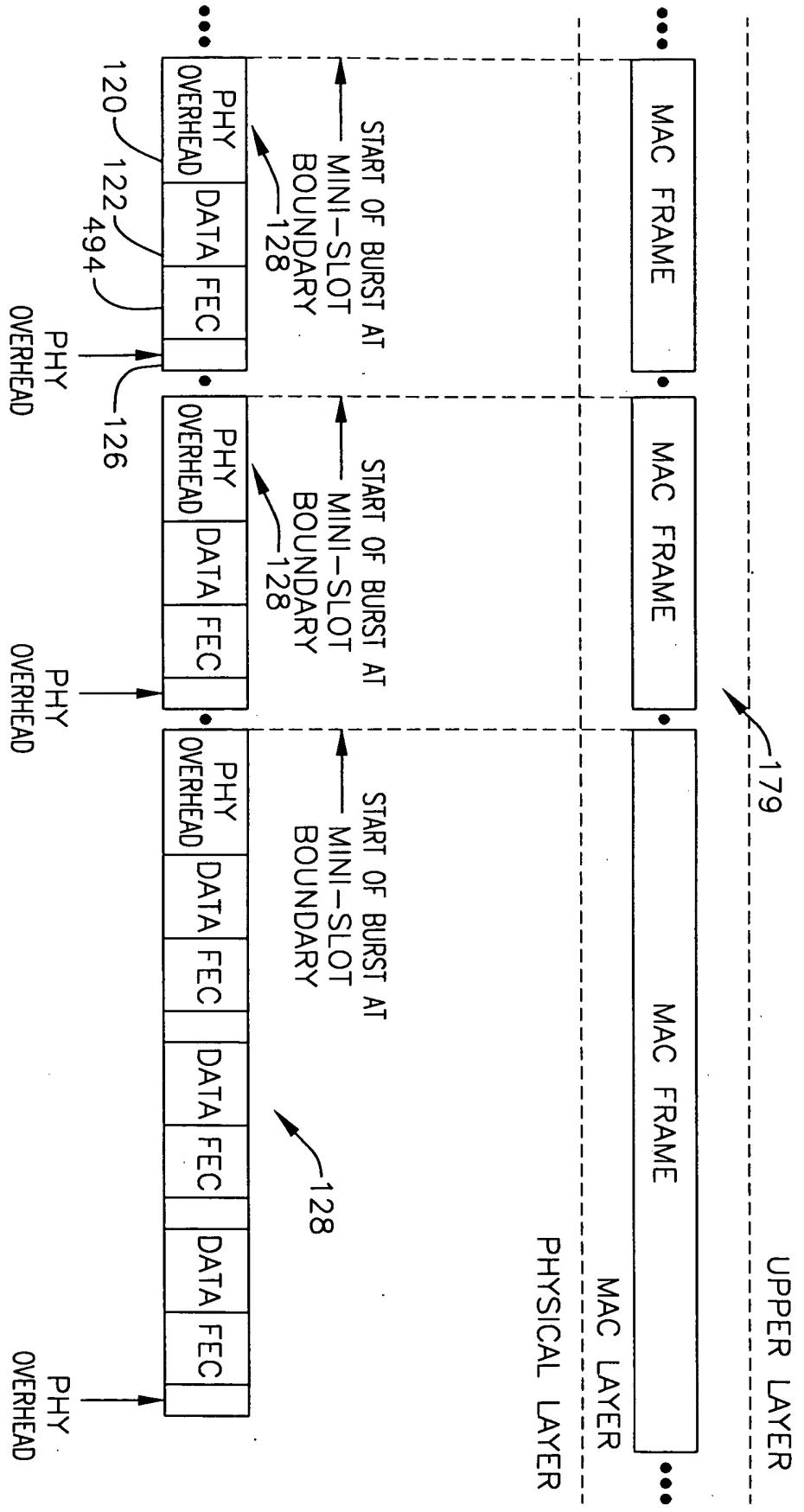


FIG.38

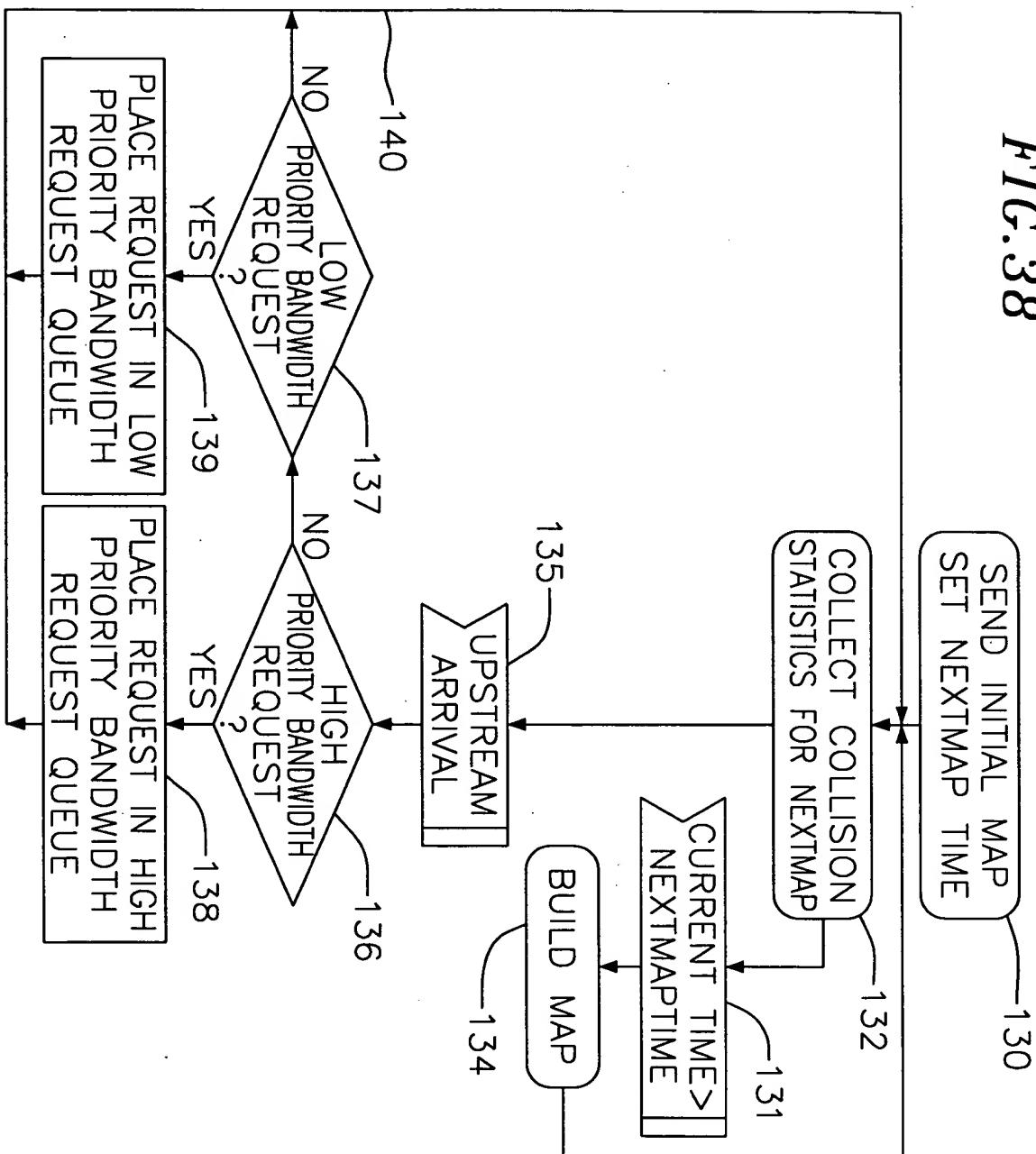


FIG. 39

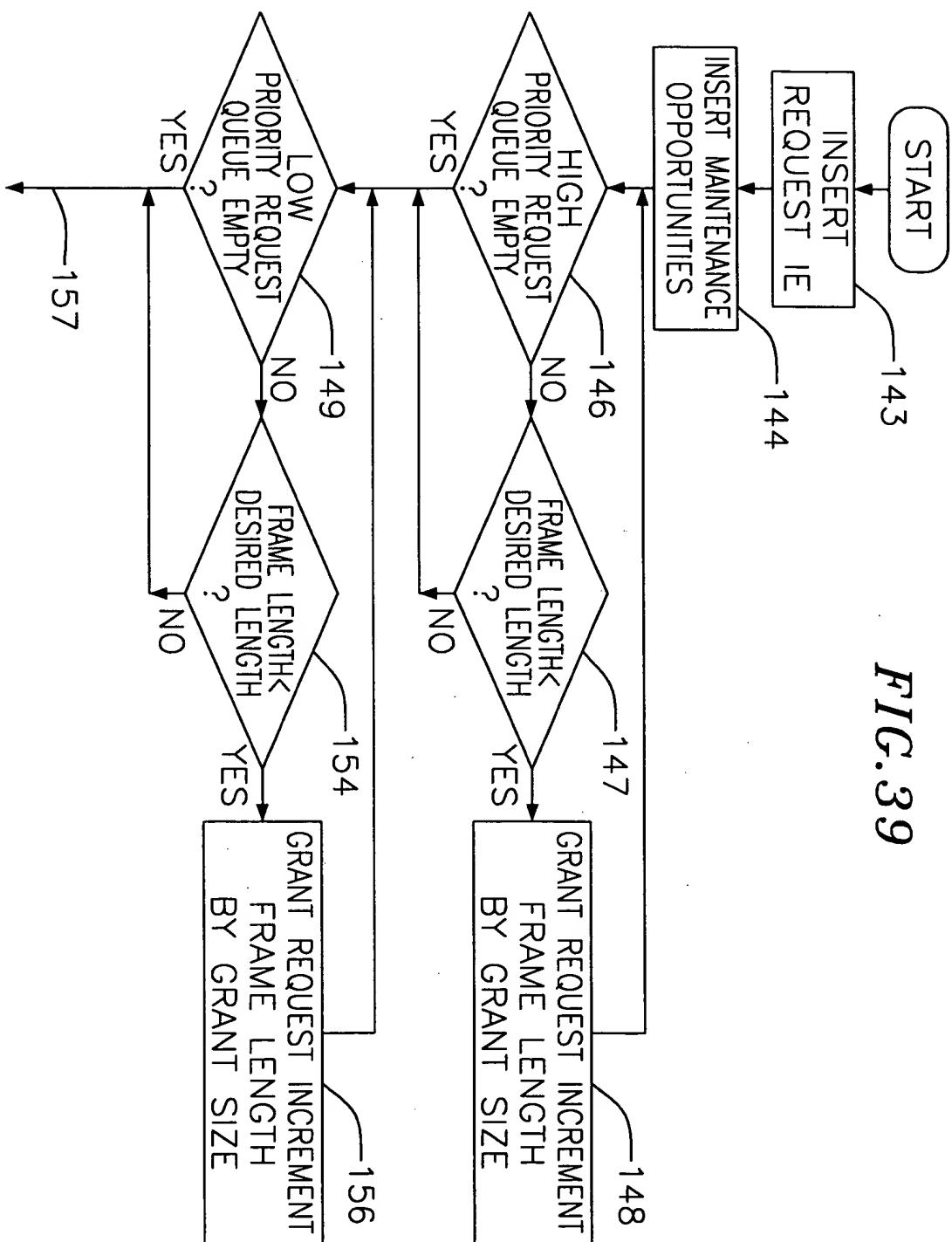
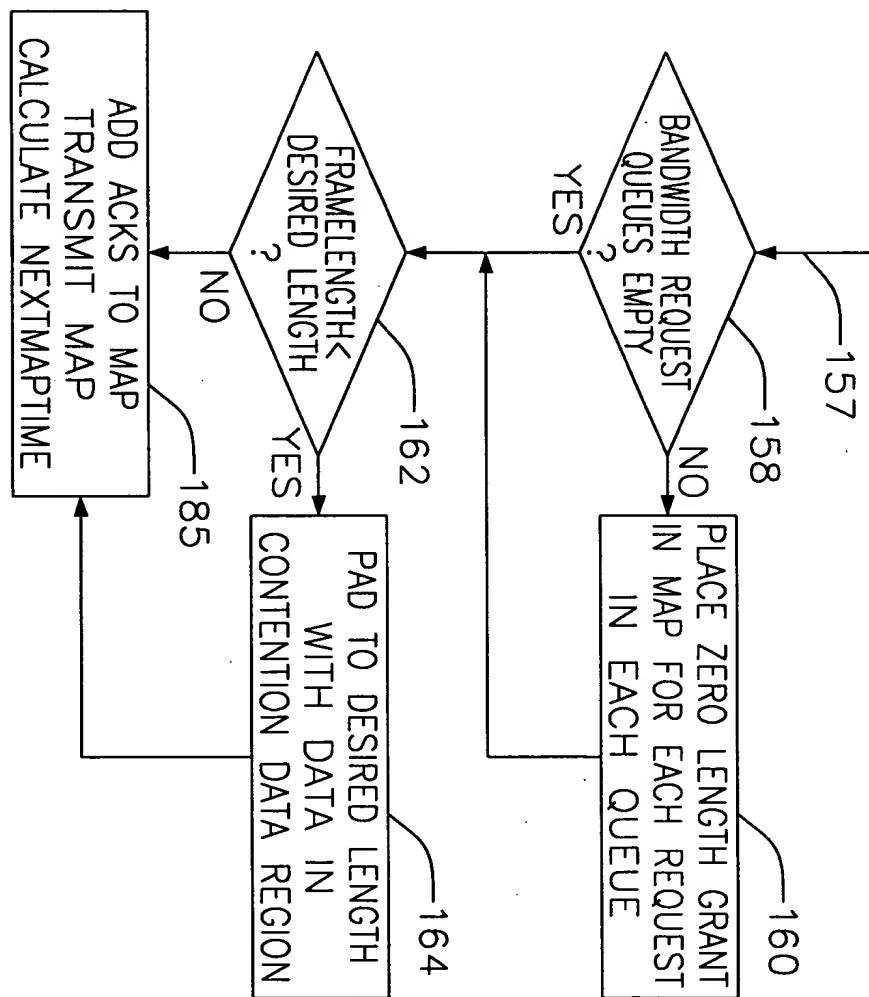


FIG. 40



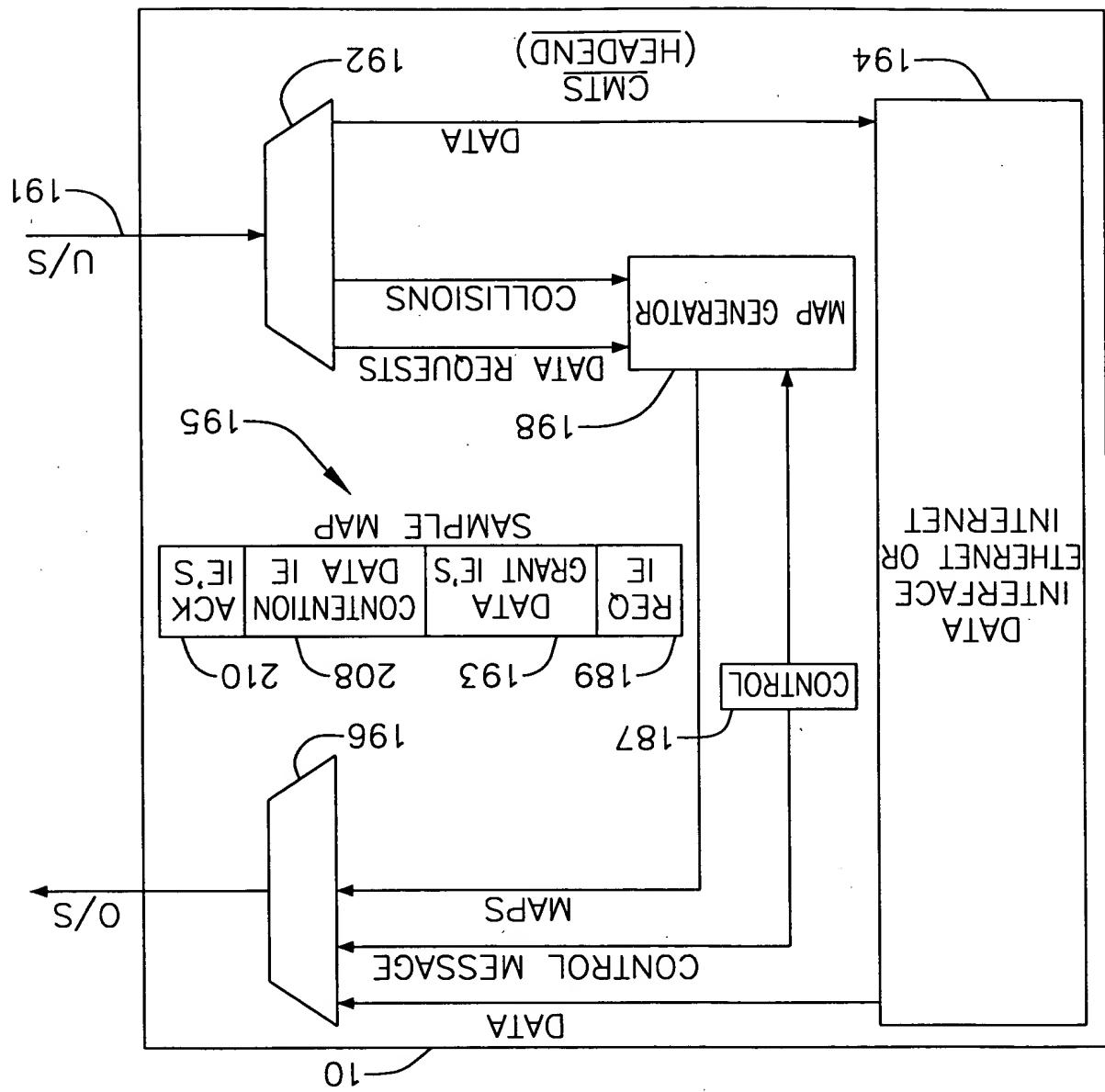


FIG.41

FIG. 42

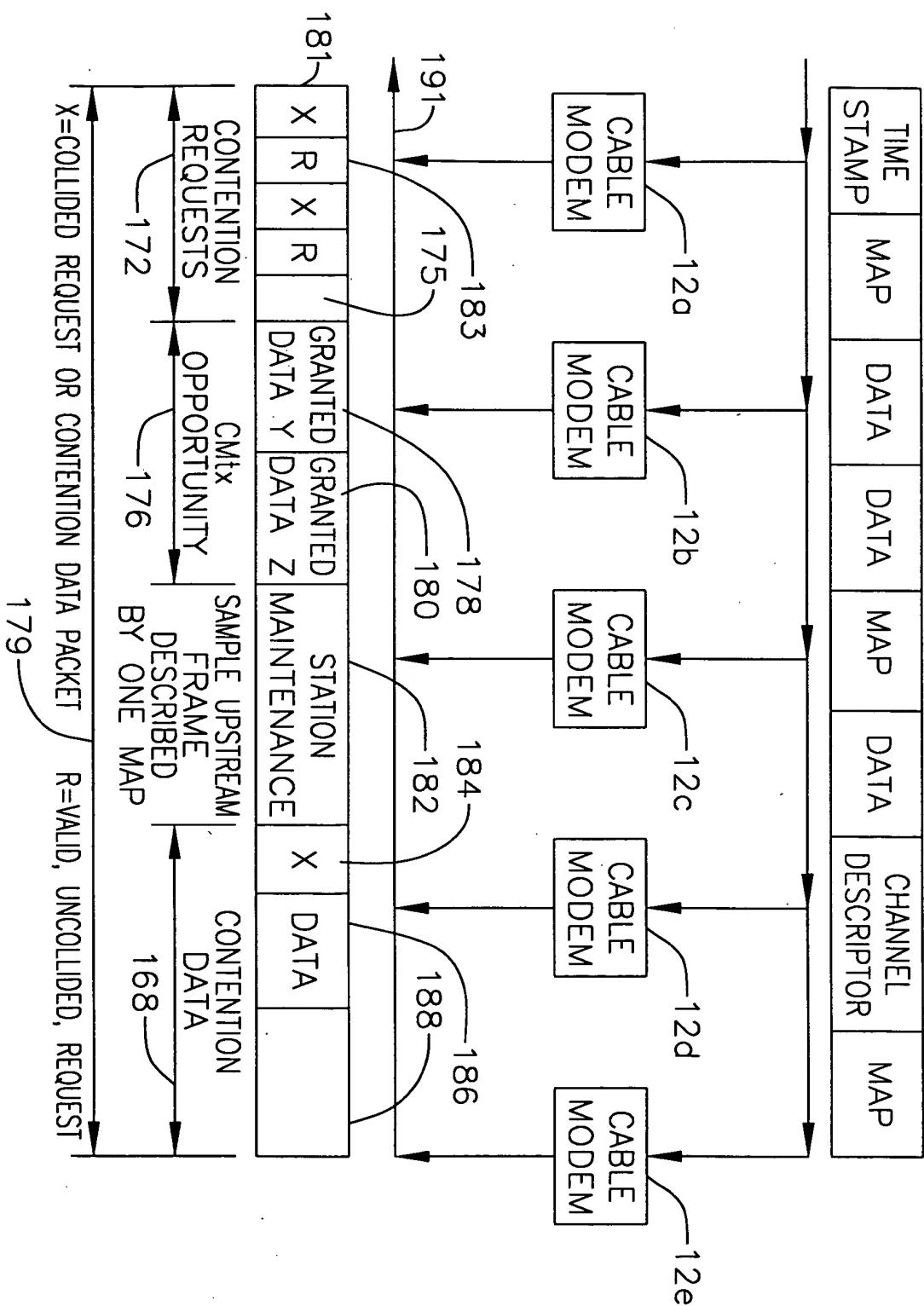


FIG. 43

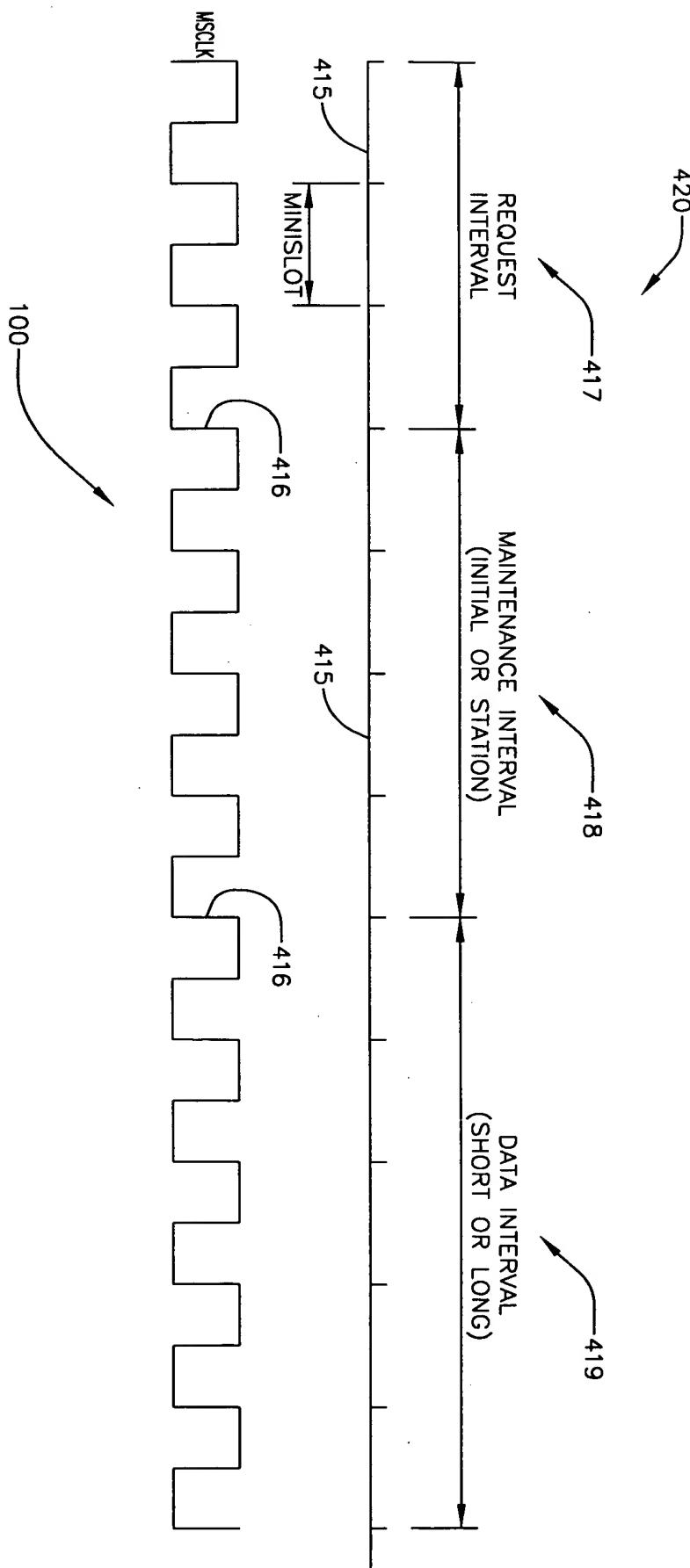


FIG.44

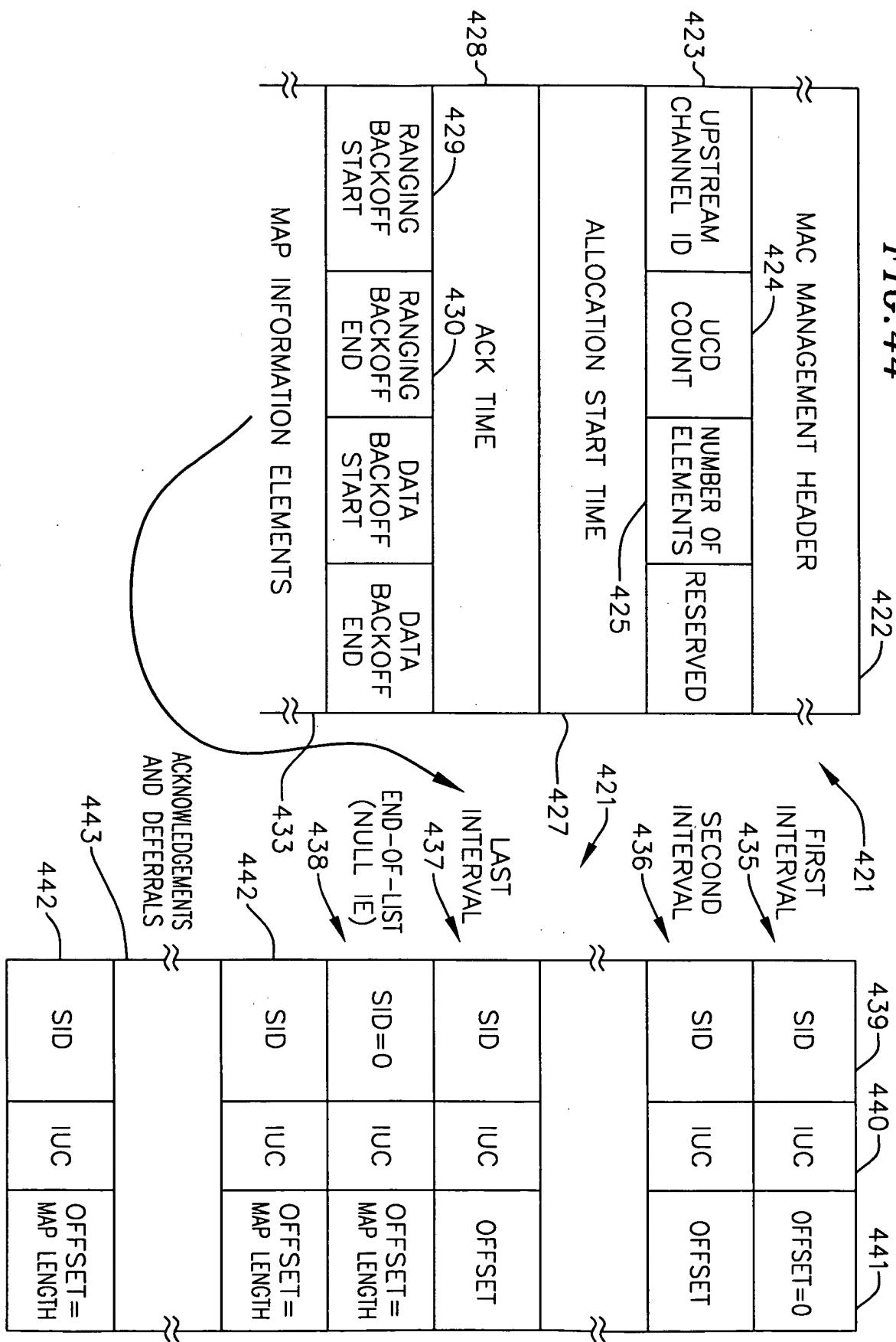


FIG.45

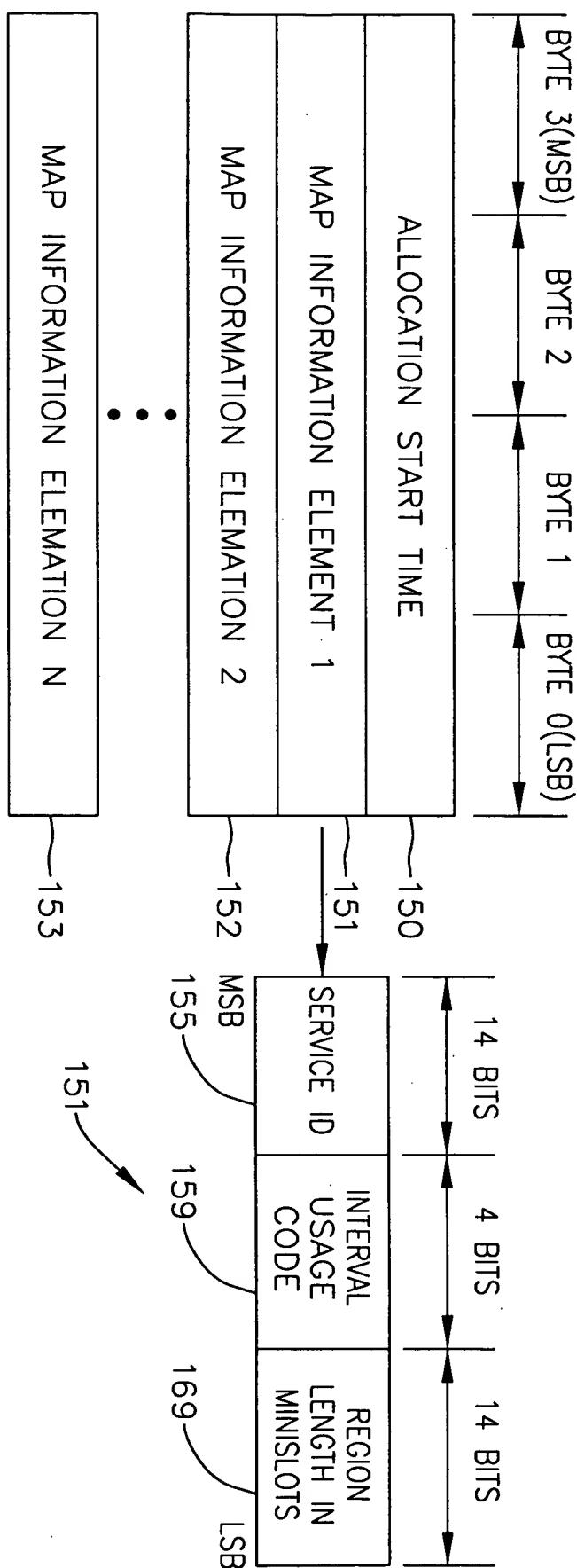


FIG. 46

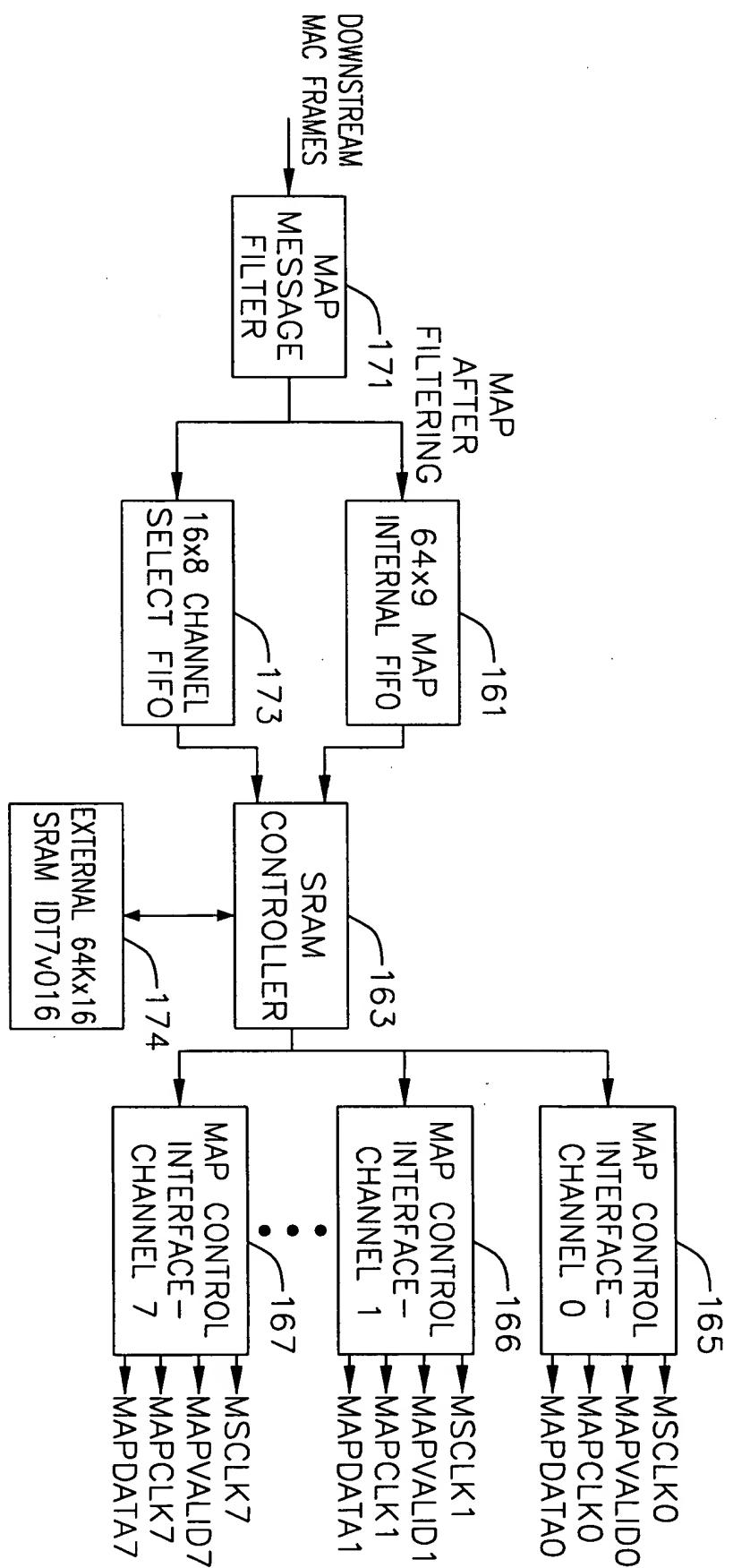


FIG. 47

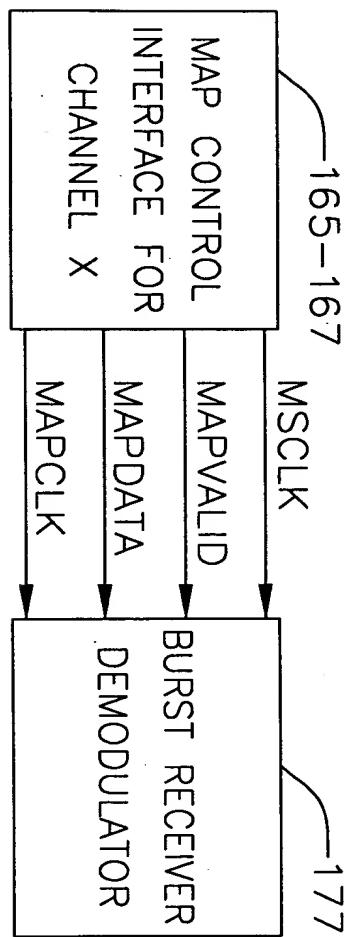


FIG. 48

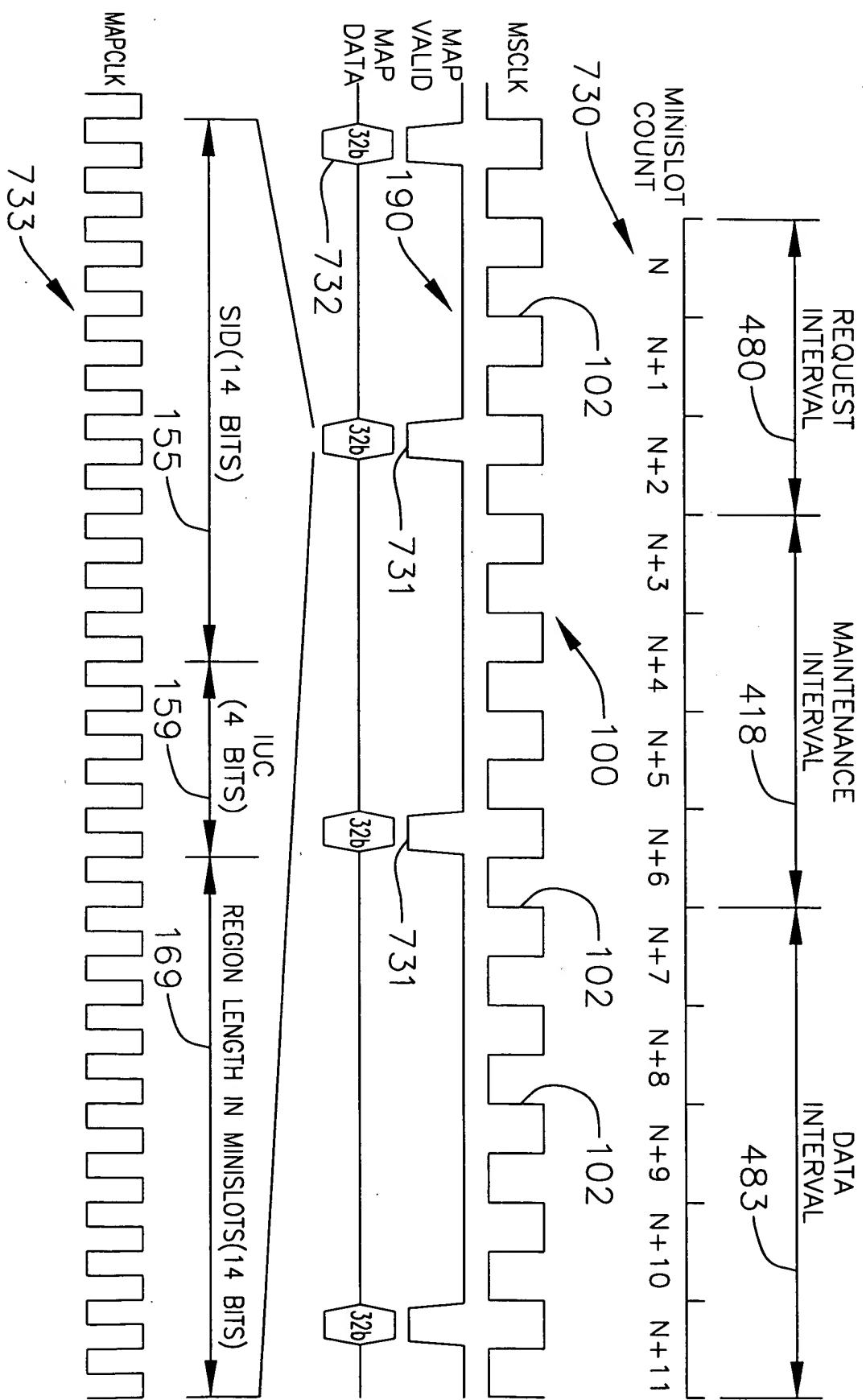


FIG. 49

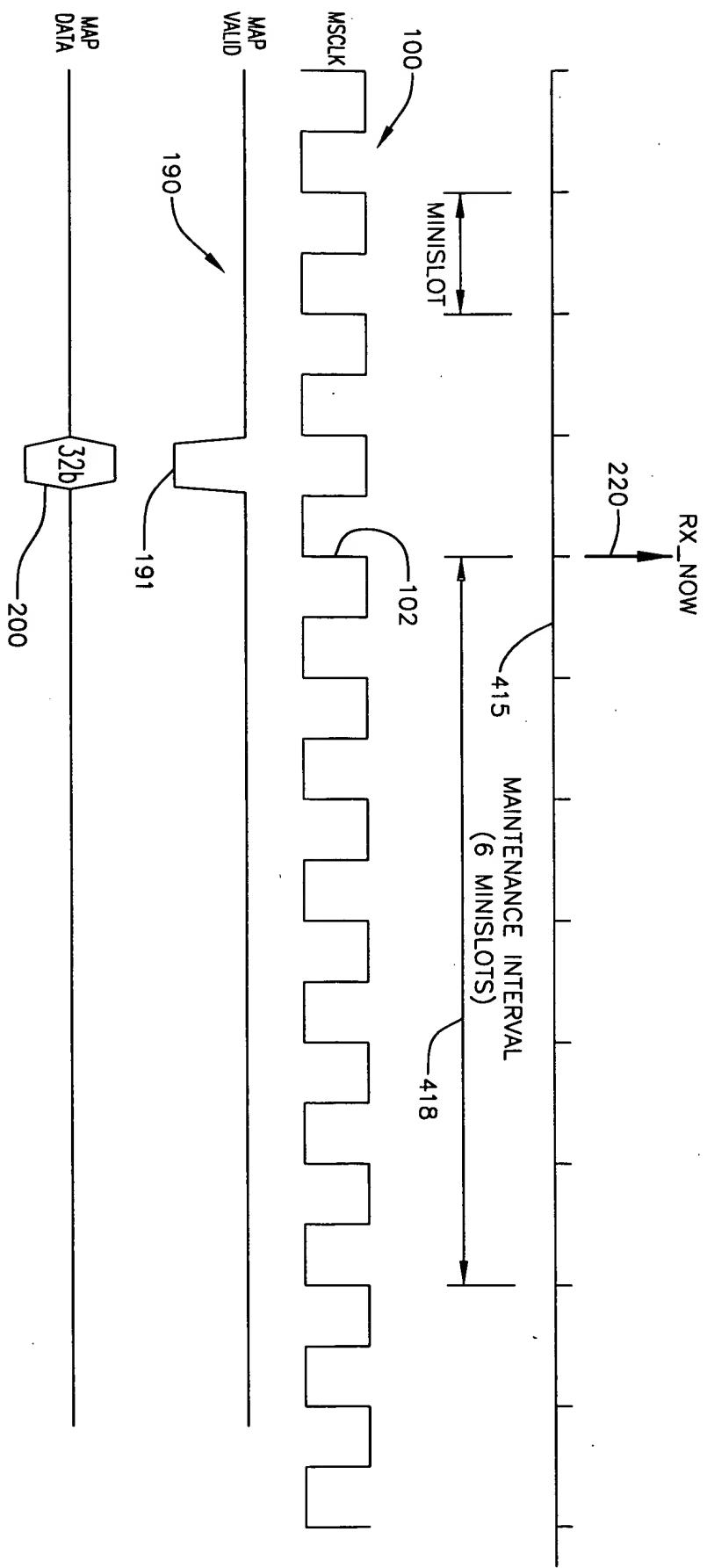


FIG.50

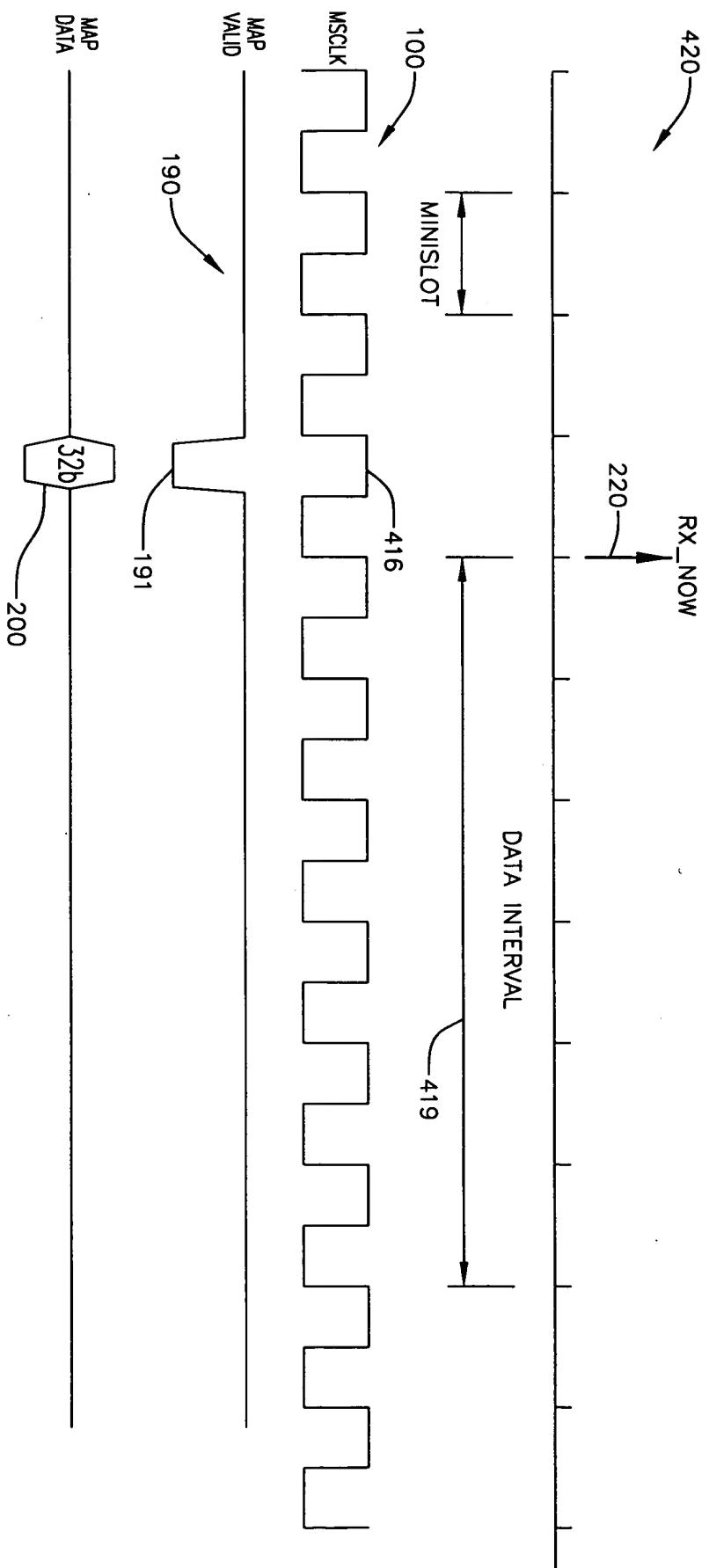
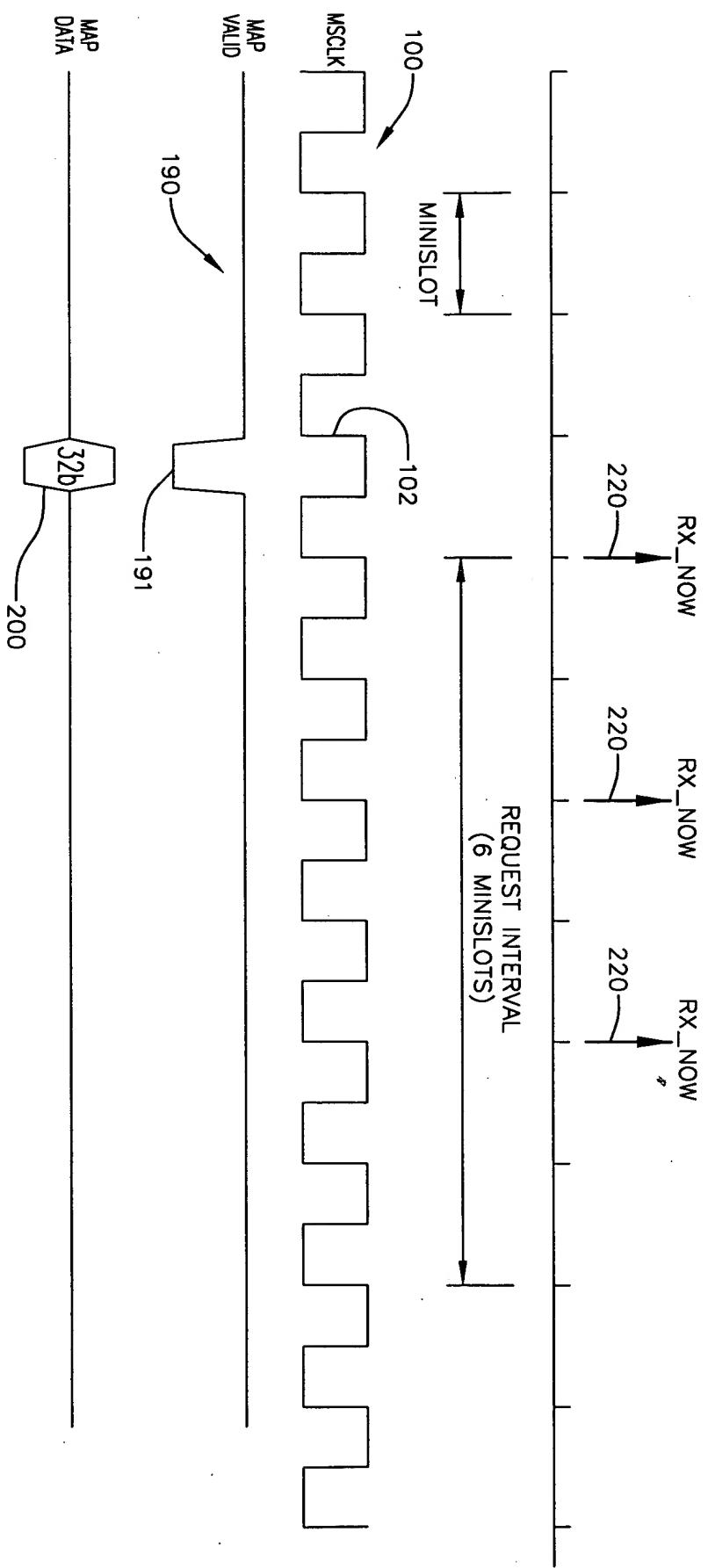


FIG. 51



REQUEST(CONTENT)	1. NUMBER OF PACKETS RECEIVED	3. NUMBER OF COLLIDED RANGING MESSAGES RECEIVED	NO UW OR BAD FEC OR BAD HEC
	2. NUMBER OF COLLIDED PACKETS	NO UW OR BAD FEC OR BAD HEC	
REQUEST/DATA	1. NUMBER OF PACKETS RECEIVED	3. NUMBER OF CORRUPTED PACKETS	NO UW OR BAD FEC OR BAD HEC
	2. NUMBER OF COLLIDED REQUESTS	NO UW OR BAD FEC OR BAD HEC	
RANGING	1. NUMBER OF RANGING MESSAGES RECEIVED	3. NUMBER OF CORRUPTED RANGING MESSAGES	NO UW OR BAD FEC OR BAD HEC
	2. NUMBER OF COLLIDED RANGING MESSAGES RECEIVED	NO UW OR BAD FEC OR BAD HEC	

BASED ON THE STATUS BYTES[7:5] BITS, THE FOLLOWING STATISTICS ARE KEPT USING COUNTERS.

FIG.54

STATS	TIMESTAMP	4 BYTES	1 BYTE	SID	2 BYTES	2 BYTES	TIME	2 BYTES	EQUALIZER COFFS.
-------	-----------	---------	--------	-----	---------	---------	------	---------	------------------

RNG. OFFSET 7 BYTES

FIG.53

STATS	TIMESTAMP	4 BYTES	1 BYTE	SID	2 BYTES	2 BYTES	TIME	3 BYTES
-------	-----------	---------	--------	-----	---------	---------	------	---------

RNG. OFFSET 7 BYTES

FIG.52

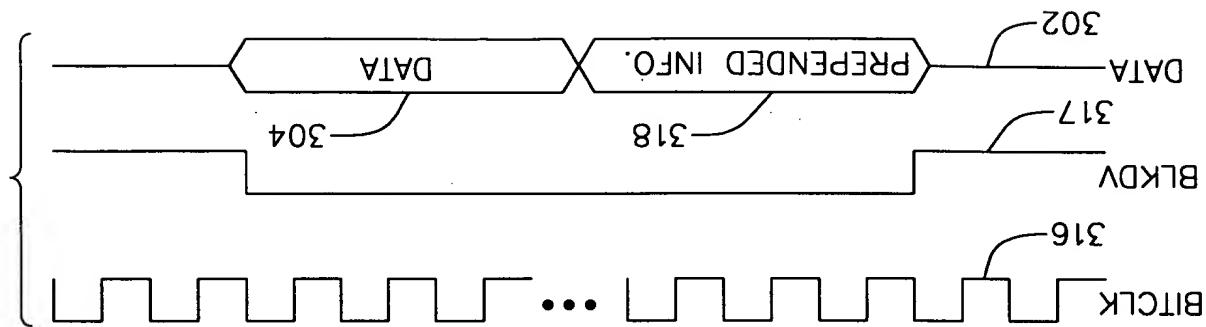


FIG.56

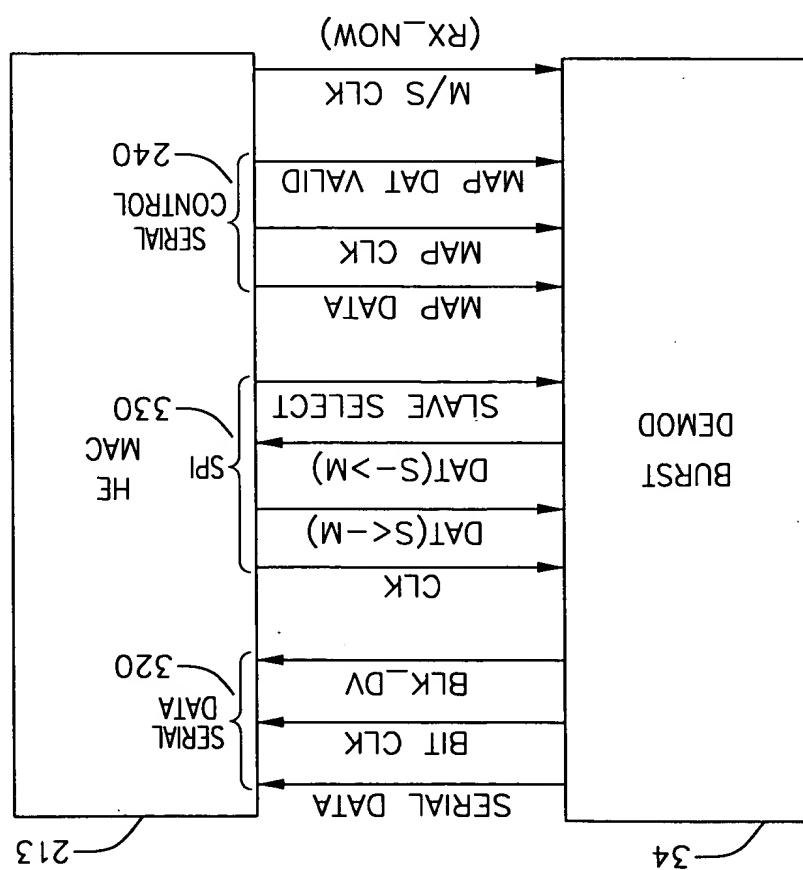


FIG.55

FIG.57

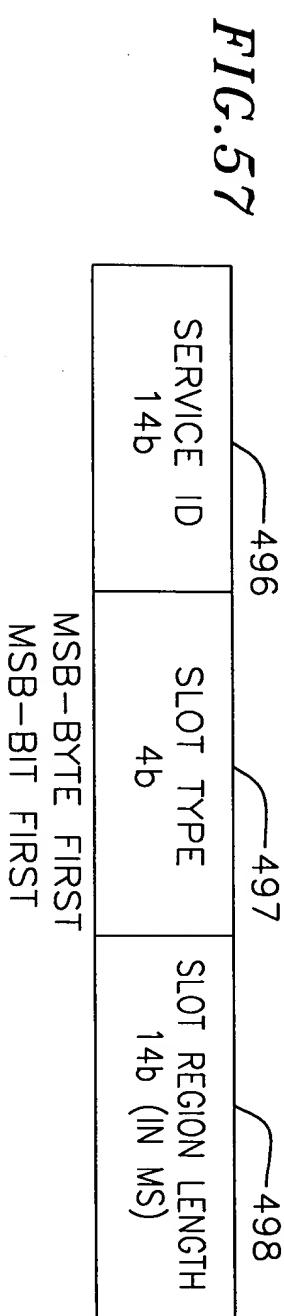


FIG.58

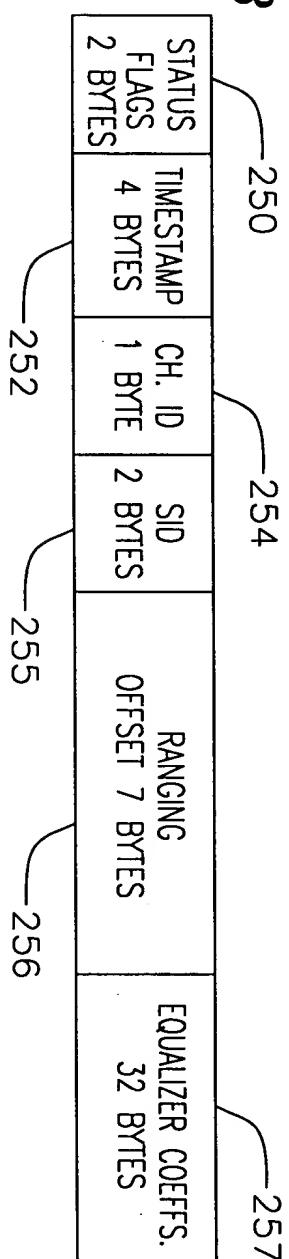


FIG.59

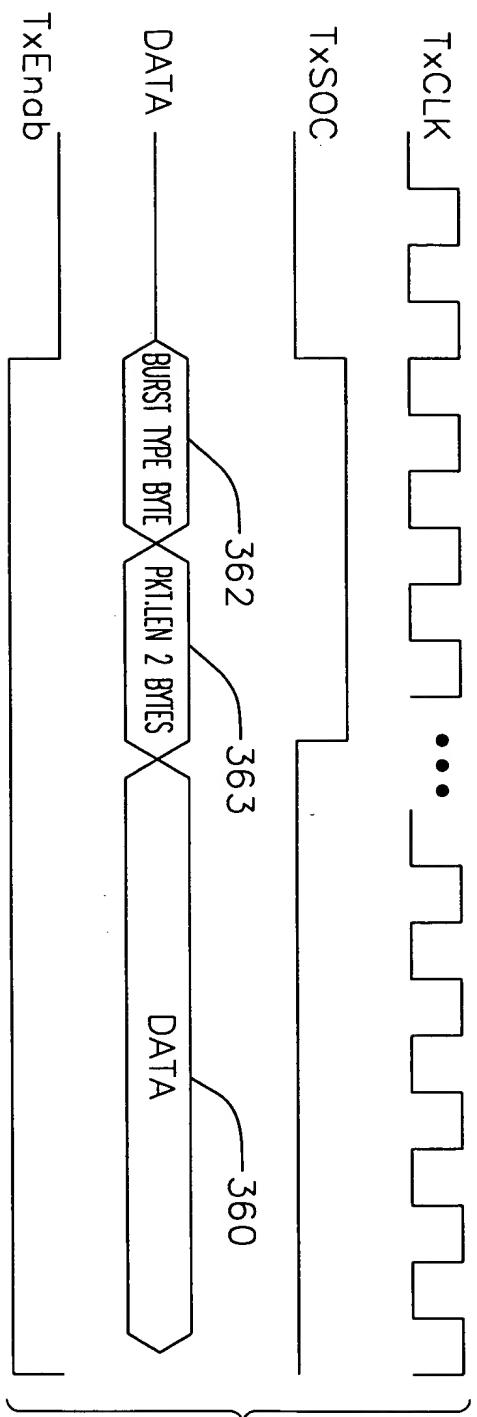


FIG. 60

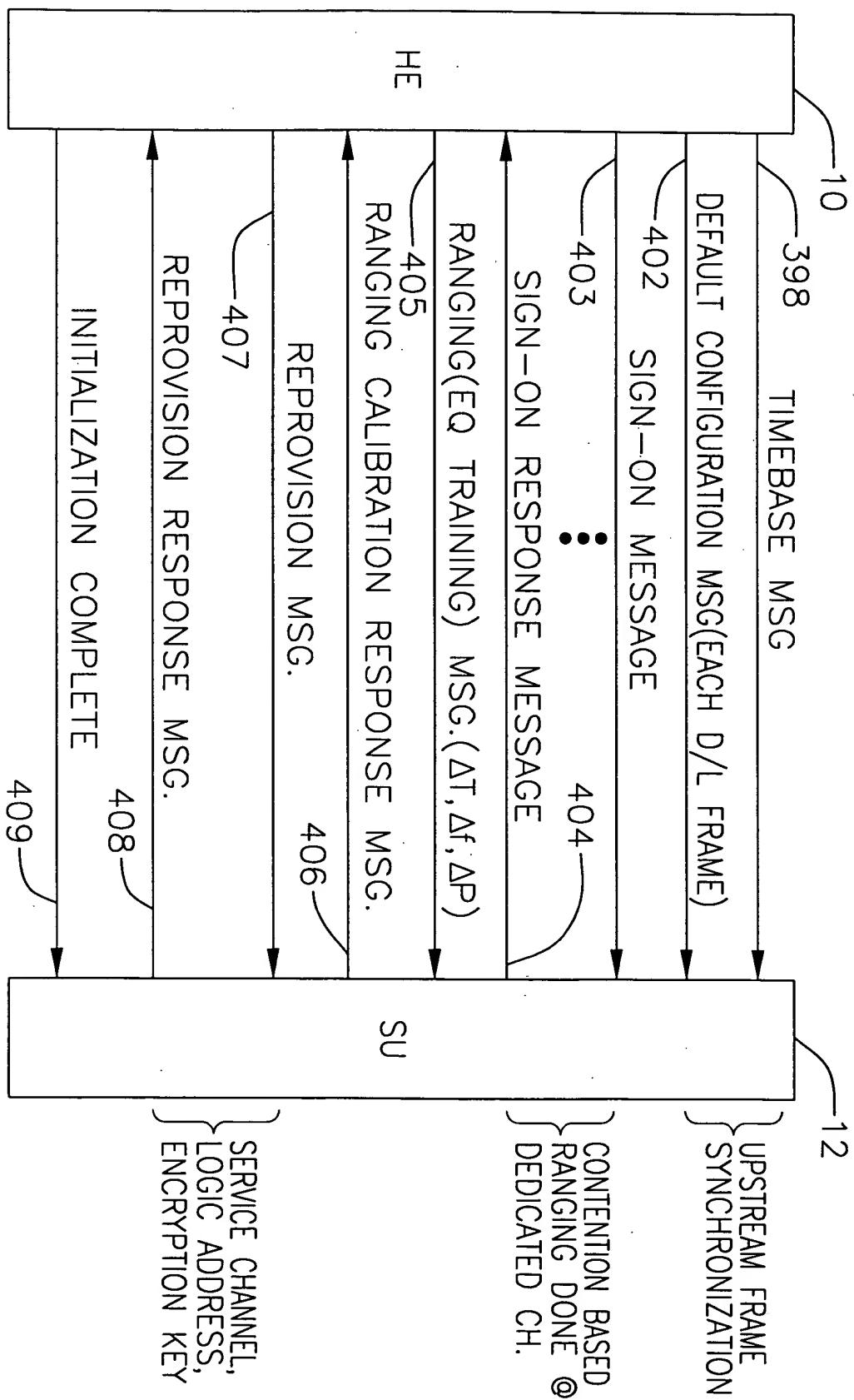
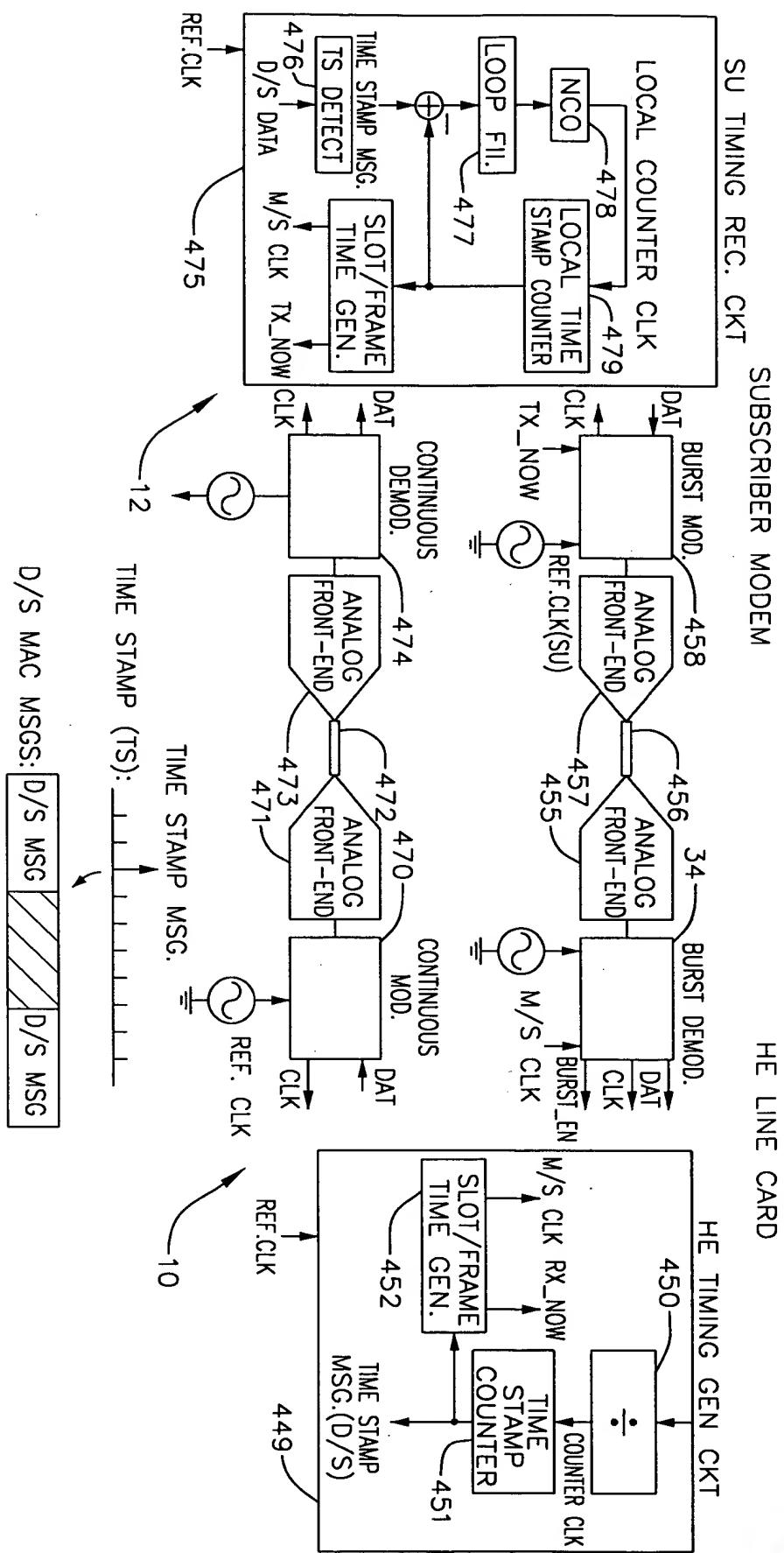


FIG. 61



ପାତା ୧୦

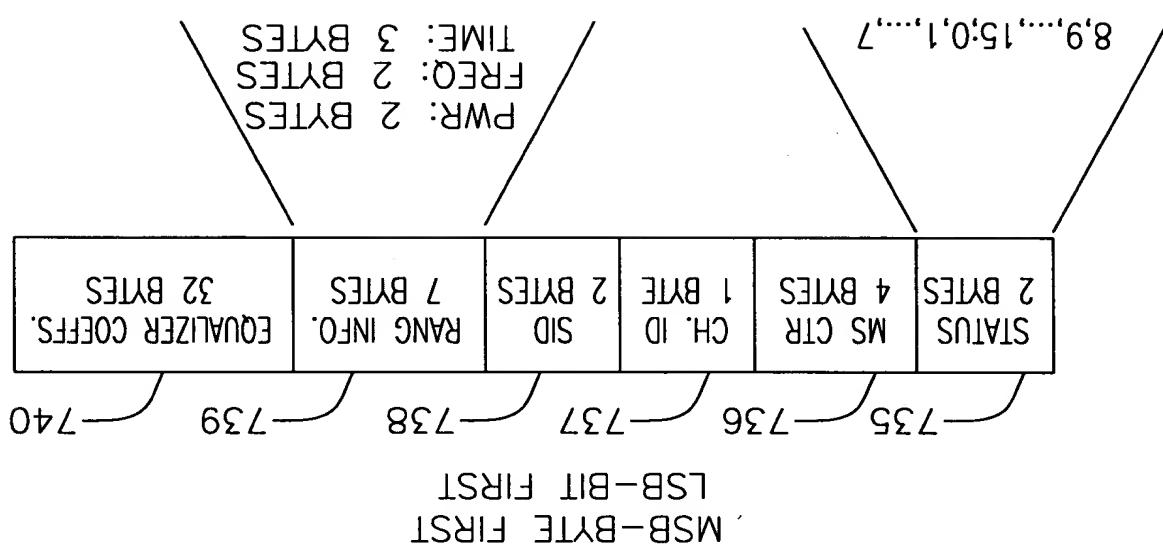


FIG. 62

FIG. 63

BIT FIELD	DEFINITION IF BIT[11]=1	DEFINITION IF BIT[11]=0
BIT[15:12]	DOCSIS IUC	RESERVED
BIT[11]	1:INDICATES 1ST. BLOCK OF TRANSMISSION	0:INDICATES NOT 1ST. BLOCK OF TRANSMISSION
BIT[10]	1:INDICATES LAST BLOCK OF TRANSMISSION	1:INDICATES LAST BLOCK OF TRANSMISSION
BIT[9]	1:INDICATES RANGING REQUIRED	RESERVED
BIT[8]	RESERVED	RESERVED
BIT[7:5]	000:FEC OK 001:CORRECTABLE FEC ERROR 010:UNCORRECTABLE FEC ERROR 011:NO UNIQUE WORD DETECTED 100:COLLIDED PACKET 101:NO ENERGY 110:PACKET LENGTH VIOLATION	000:FEC OK 001:CORRECTABLE FEC ERROR 010:UNCORRECTABLE FEC ERROR 011:NO UNIQUE WORD DETECTED 100:COLLIDED PACKET 101:NO ENERGY 110:PACKET LENGTH VIOLATION
BIT[4]	1:VALID MINISLOT COUNT PREPENDED	RESERVED
BIT[3]	1:VALID CHANNEL ID PREPENDED	RESERVED
BIT[2]	1:VALID SID PREPENDED	RESERVED
BIT[1]	1:RANGING INFO PREPENDED	RESERVED
BIT[0]	1:EQUALIZER COEFFICIENTS PREPENDED	RESERVED

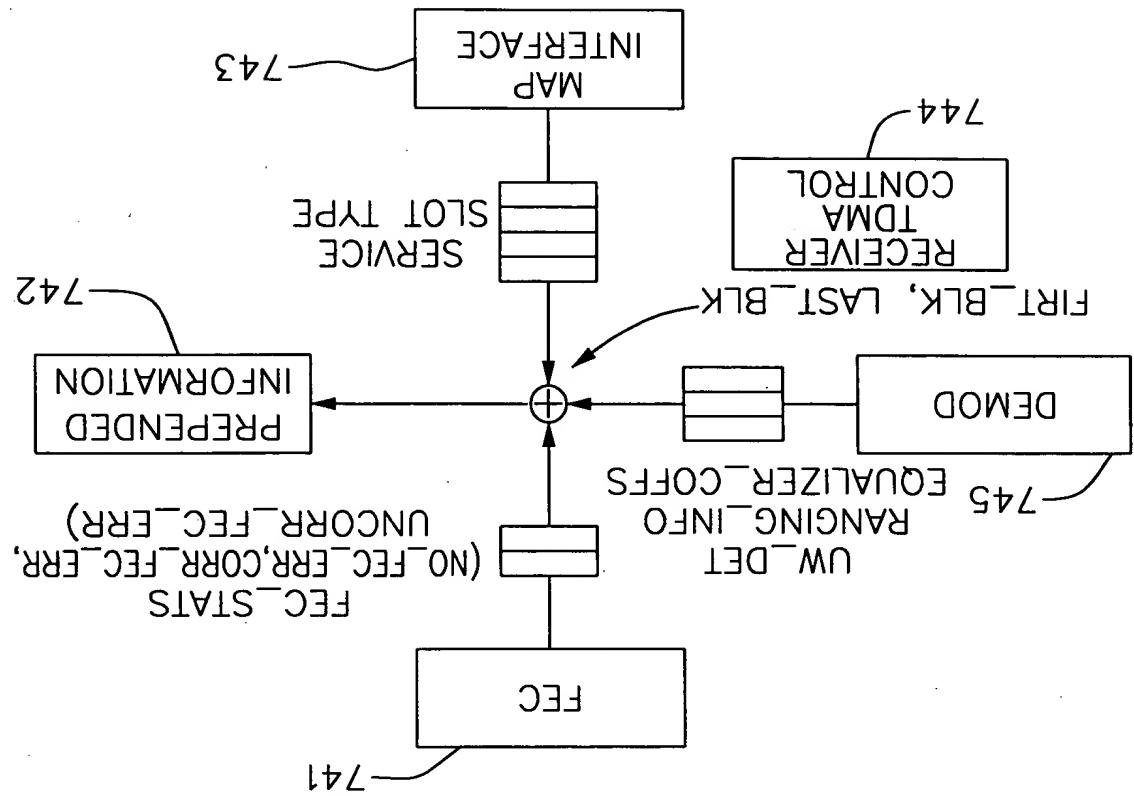


FIG. 65

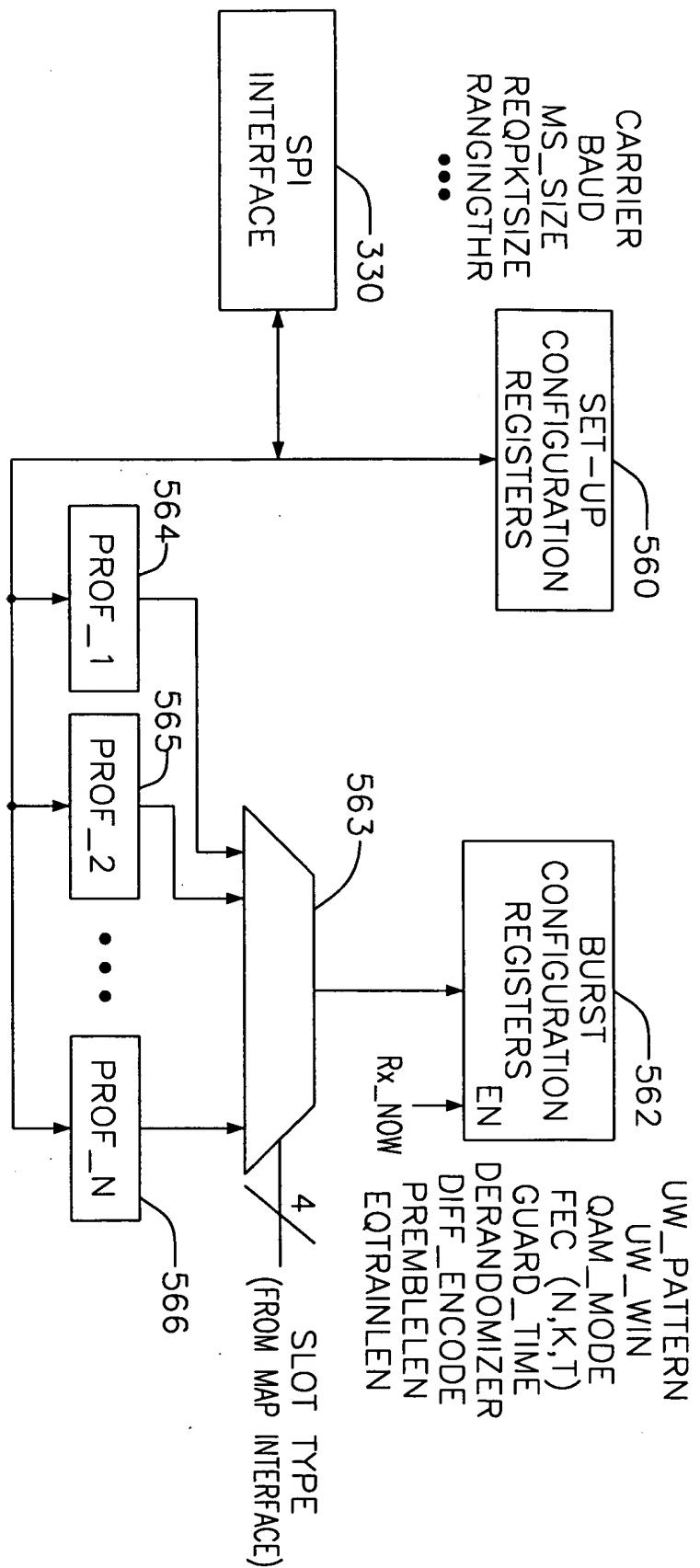


FIG. 66

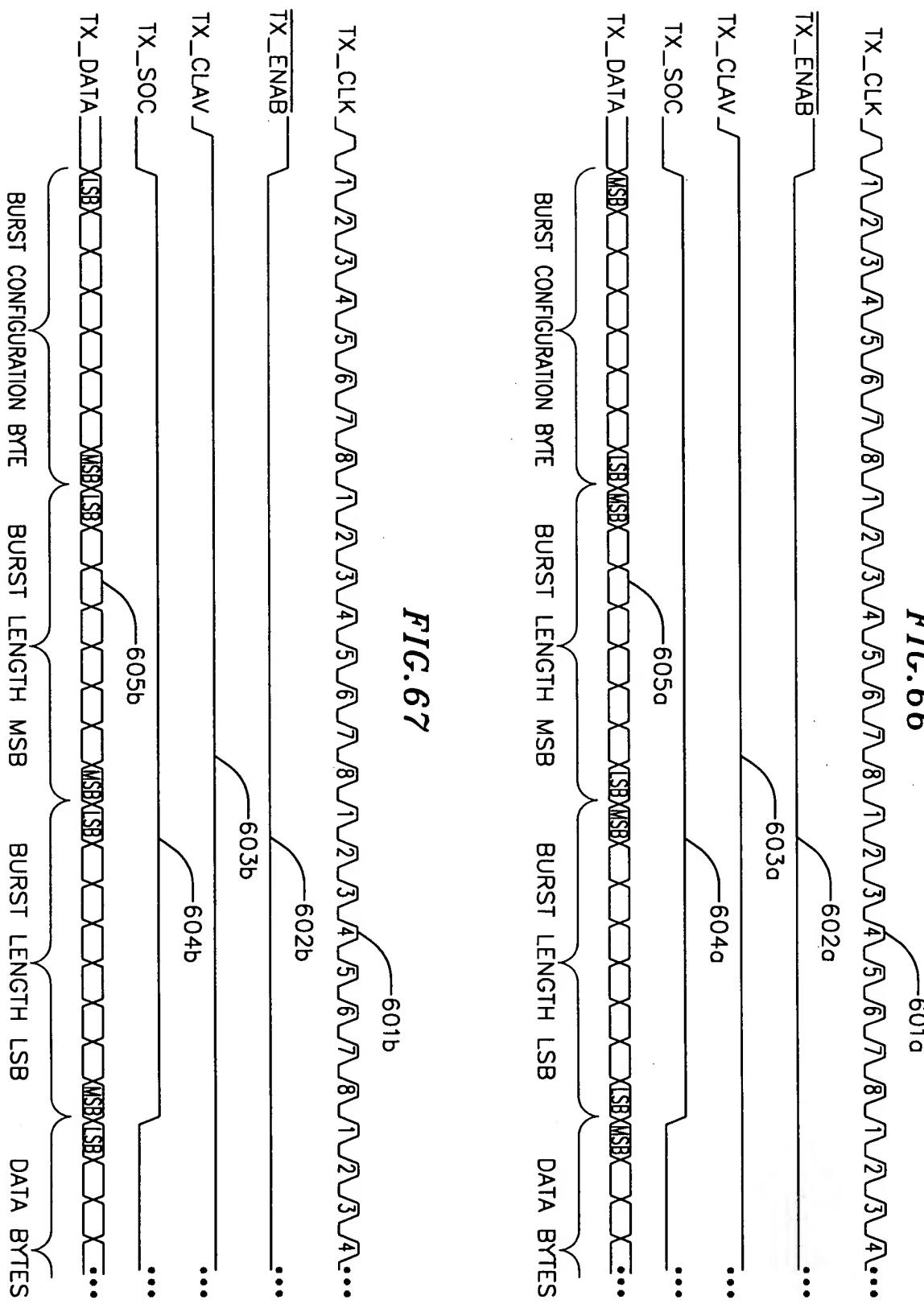


FIG. 67

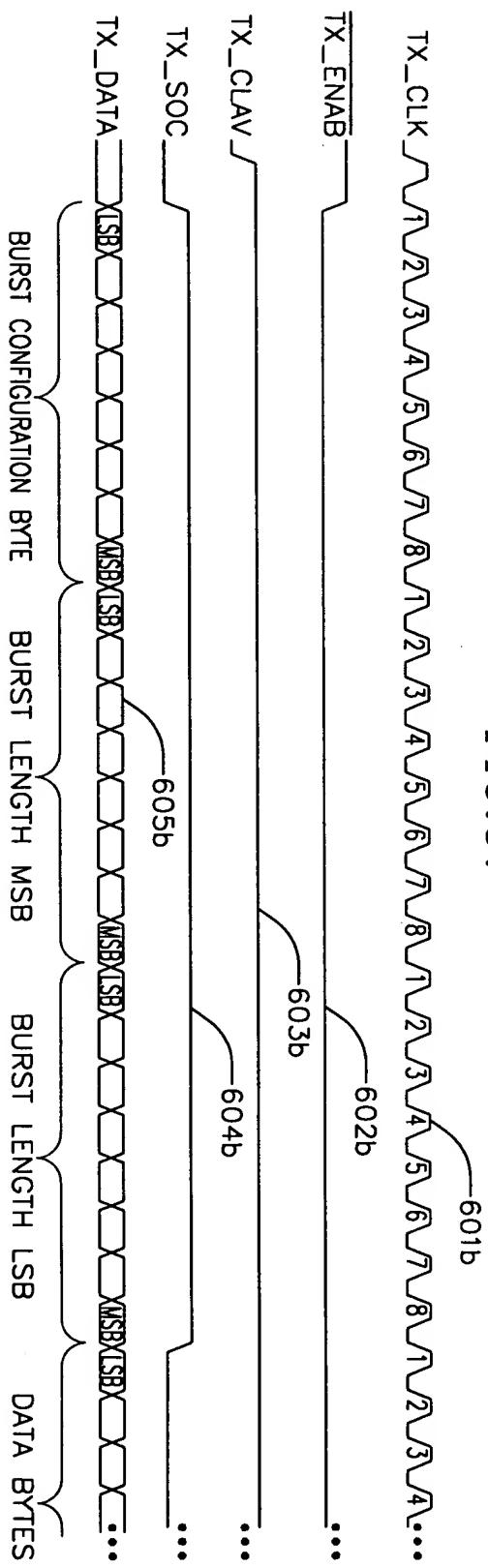
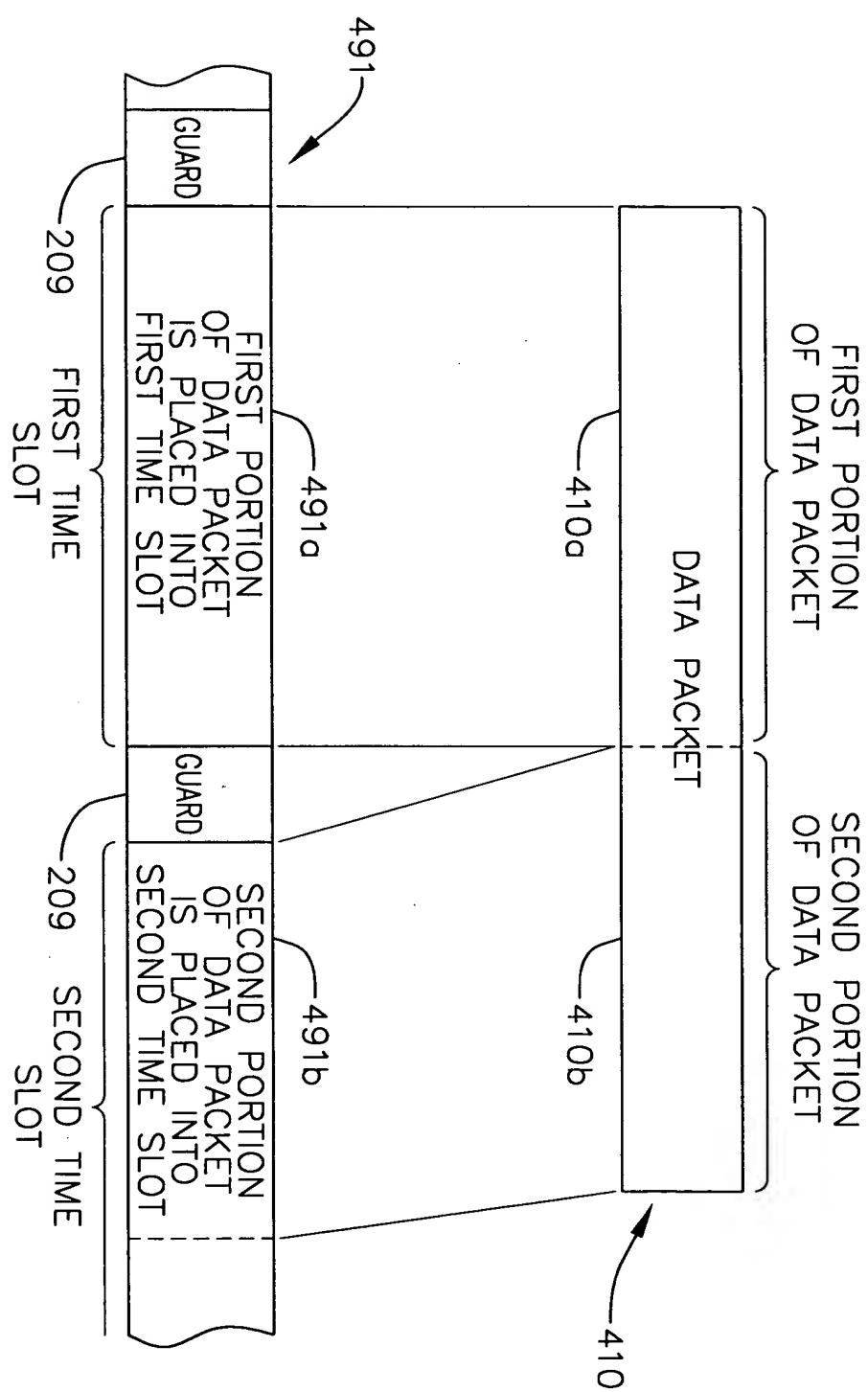


FIG. 68



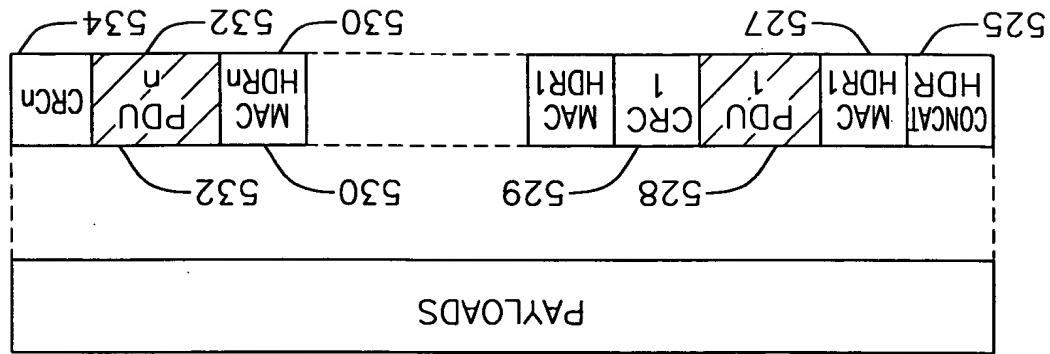


FIG. 70

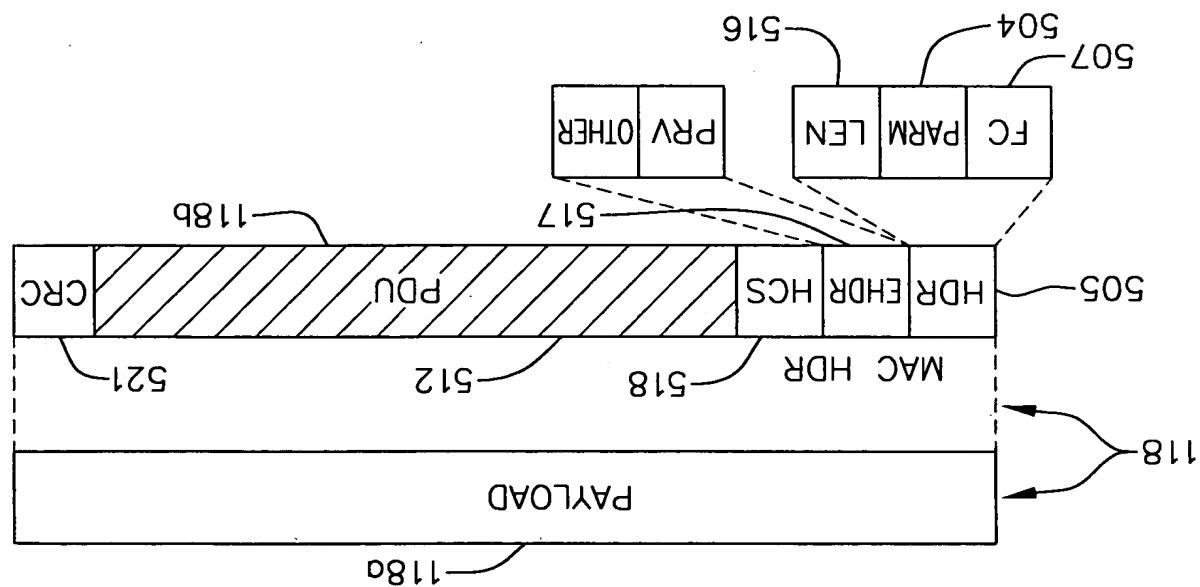


FIG. 69

FIG. 71

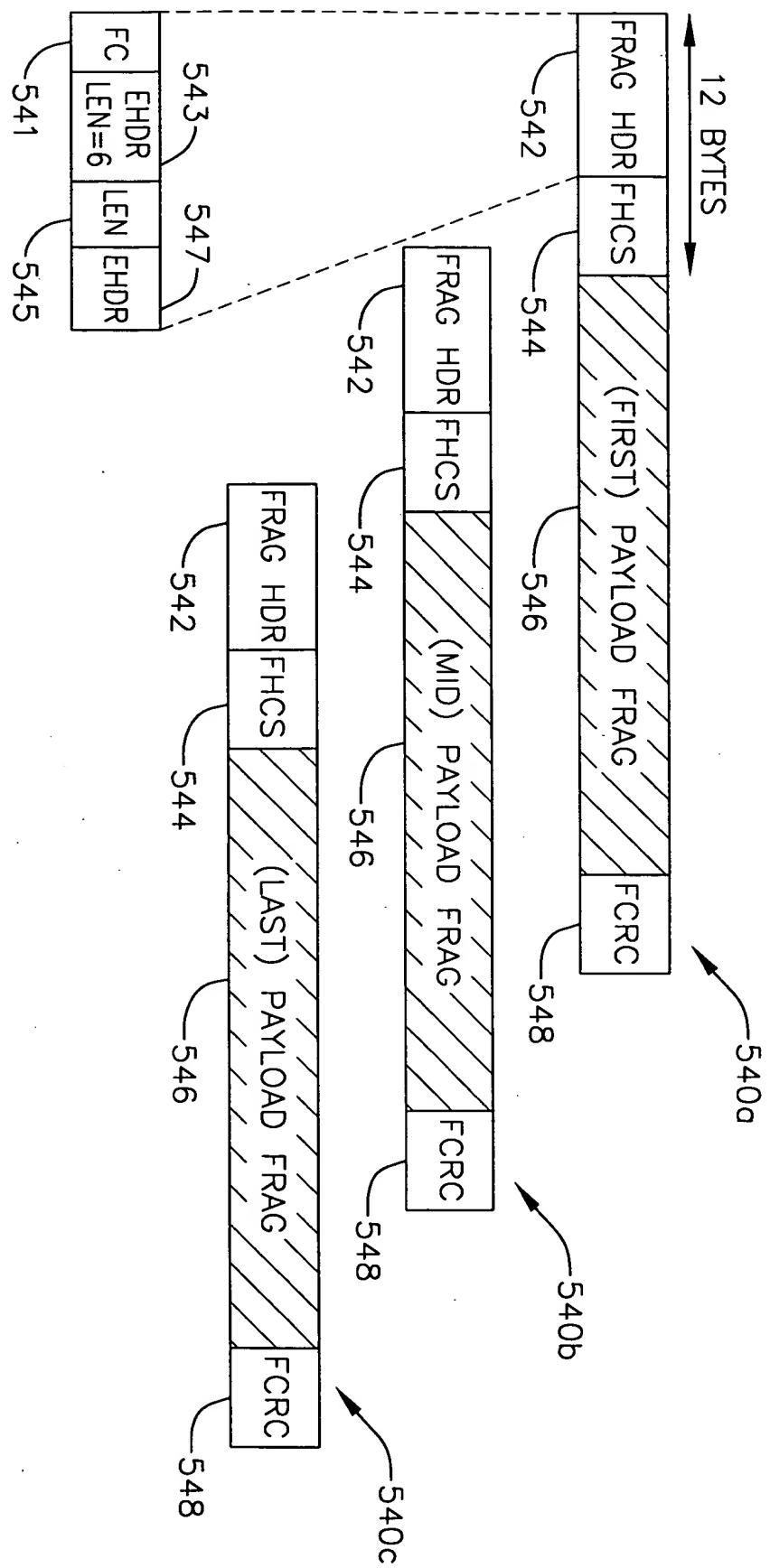


FIG. 72

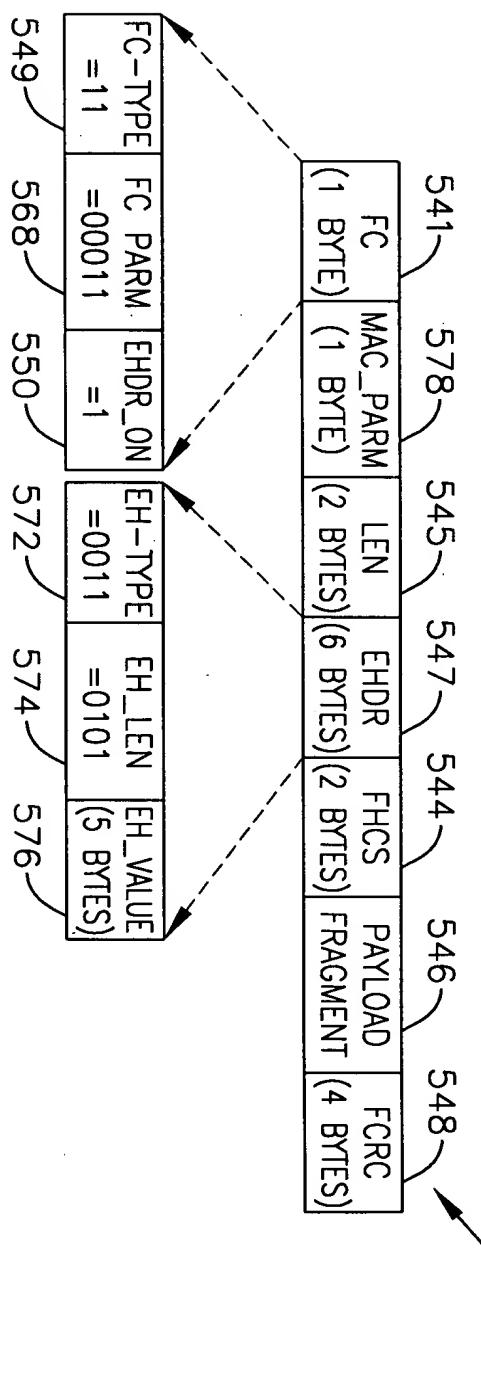


FIG. 73

FIELD	USAGE	SIZE
FC	FC_TYPE = 11; MAC_SPECIFIC HEADER FC_PARM [4:0] = 00011; FRAGMENTATION MAC HEADER EHDR_ON = 1; FRAGMENTATION EHDR FOLLOWS	8 BITS
MAC_PARM	ELEN = 6 BYTES; LENGTH OF FRAGMENTATION EHDR	8 BITS
LEN	LEN = n+10; TOTAL LENGTH OF THIS FRAGMENT INCLUDING PAYLOAD, EHDR, FCRC	16 BITS

FIG. 74

FIELD	USAGE	SIZE
EHDR	EH_TYPE=3; SAME TYPE AS BP_UP EH_LEN=5; LENGTH OF THIS EHDR KEY_SEQ; SAME AS IN BP_UP VER=0001; VERSION NUMBER FOR THIS EHDR ENABLE IF ENABLE=0, BPI DISABLED IF ENABLE=1, BPI ENABLED TOGGLE BIT; SAME AS IN BP_UP SID; SERVICE ID ASSOCIATED WITH THIS FRAGMENT REQ; NUMBER OF MINI-SLOTS FOR A PIGGYBACK REQUEST RESERVED; MUST BE SET TO ZERO FIRST_FRAG; SET TO ONE FOR FIRST FRAGMENT ONLY LAST_FRAG; SET TO ONE FOR LAST FRAGMENT ONLY FRAG_SEQ; FRAGMENT SEQUENCE COUNT, INCREMENTED FOR EACH FRAGMENT, SET TO ZERO FOR FIRST FRAGMENT	4 BITS 4 BITS 4 BITS 4 BITS 1 BIT 14 BITS 8 BITS 2 BITS 1 BIT 1 BIT 4 BITS
FHCS	MAC HEADER CHECK SEQUENCE	2 BYTES
PAYLOAD	FRAGMENT PAYLOAD; PORTION OF TOTAL MAC PDU BEING SENT	n BYTES
FCRC	CRC ACROSS FRAGMENT PAYLOAD	4 BYTES
	LENGTH OF A MAC FRAGMENT FRAME	n + 16 BYTES

FIG. 75

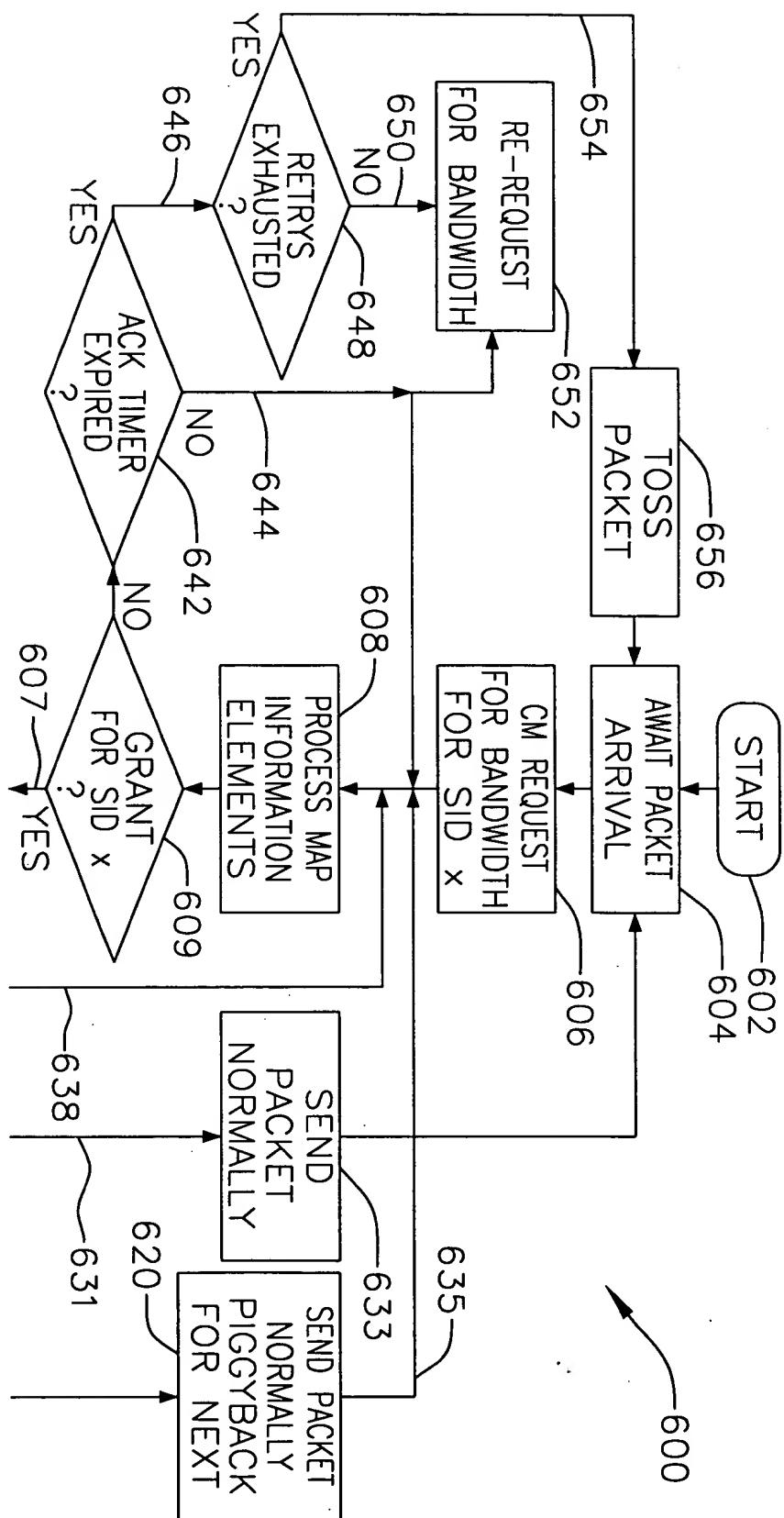


FIG. 76

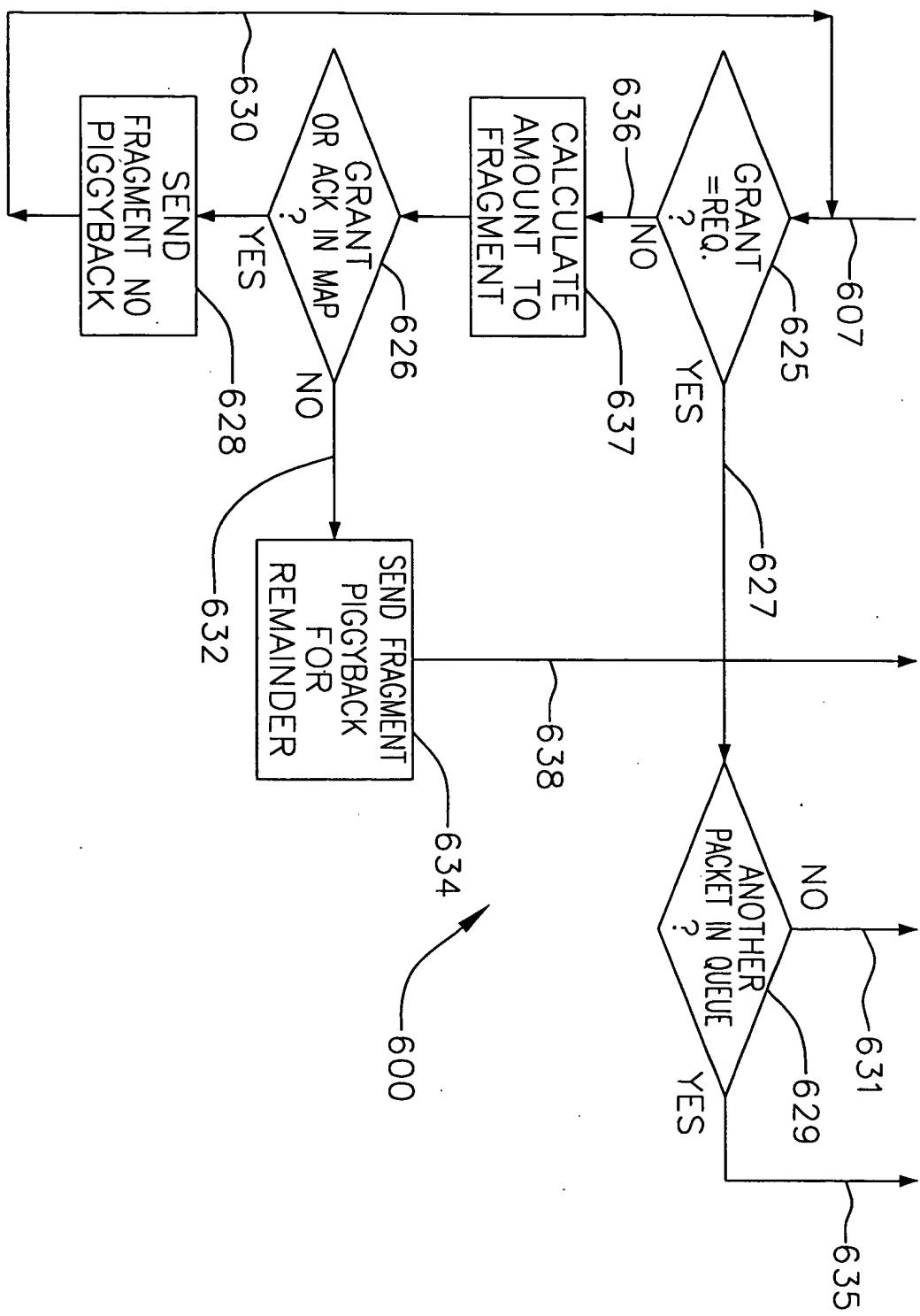


FIG. 77

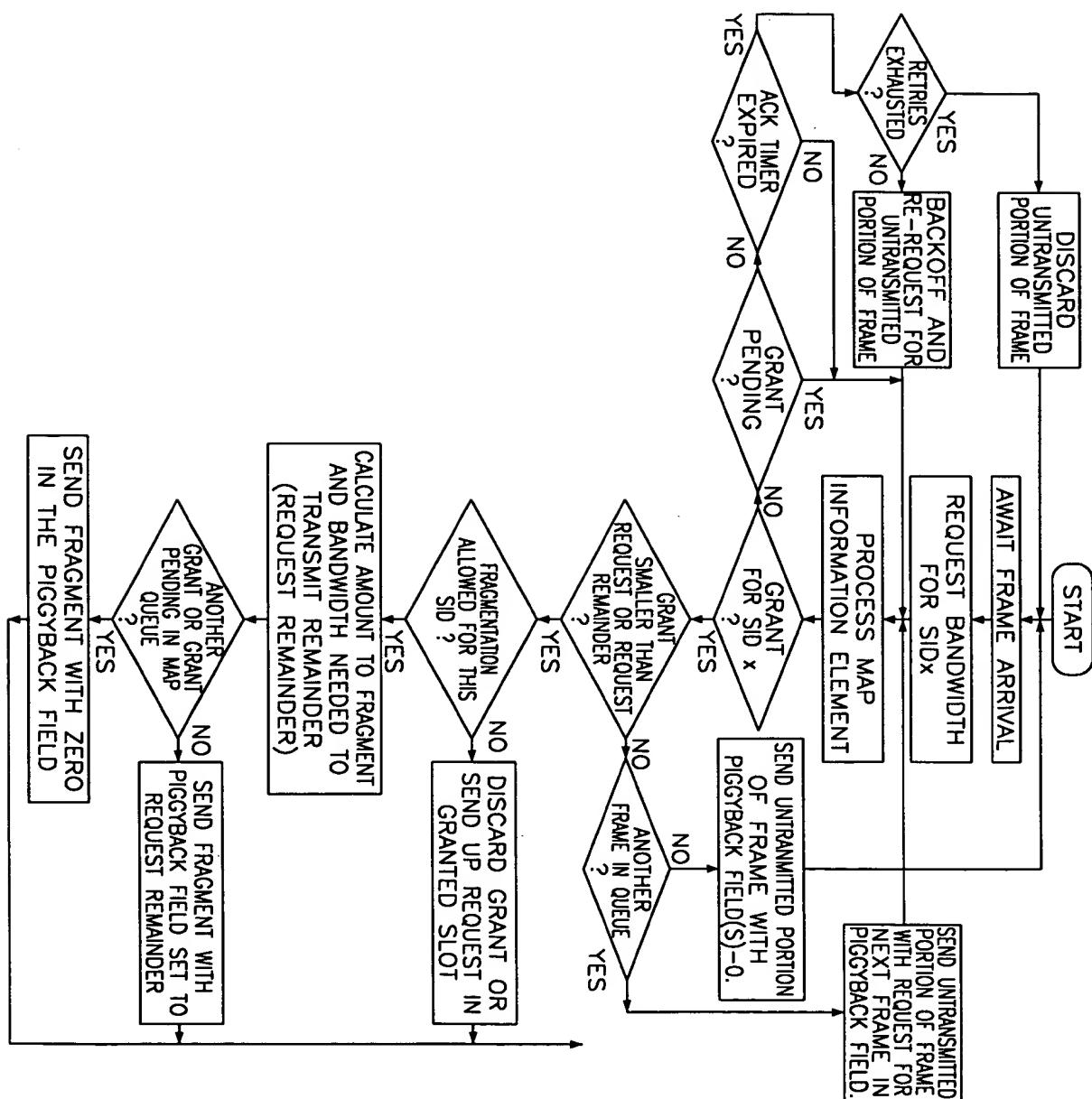


FIG. 78

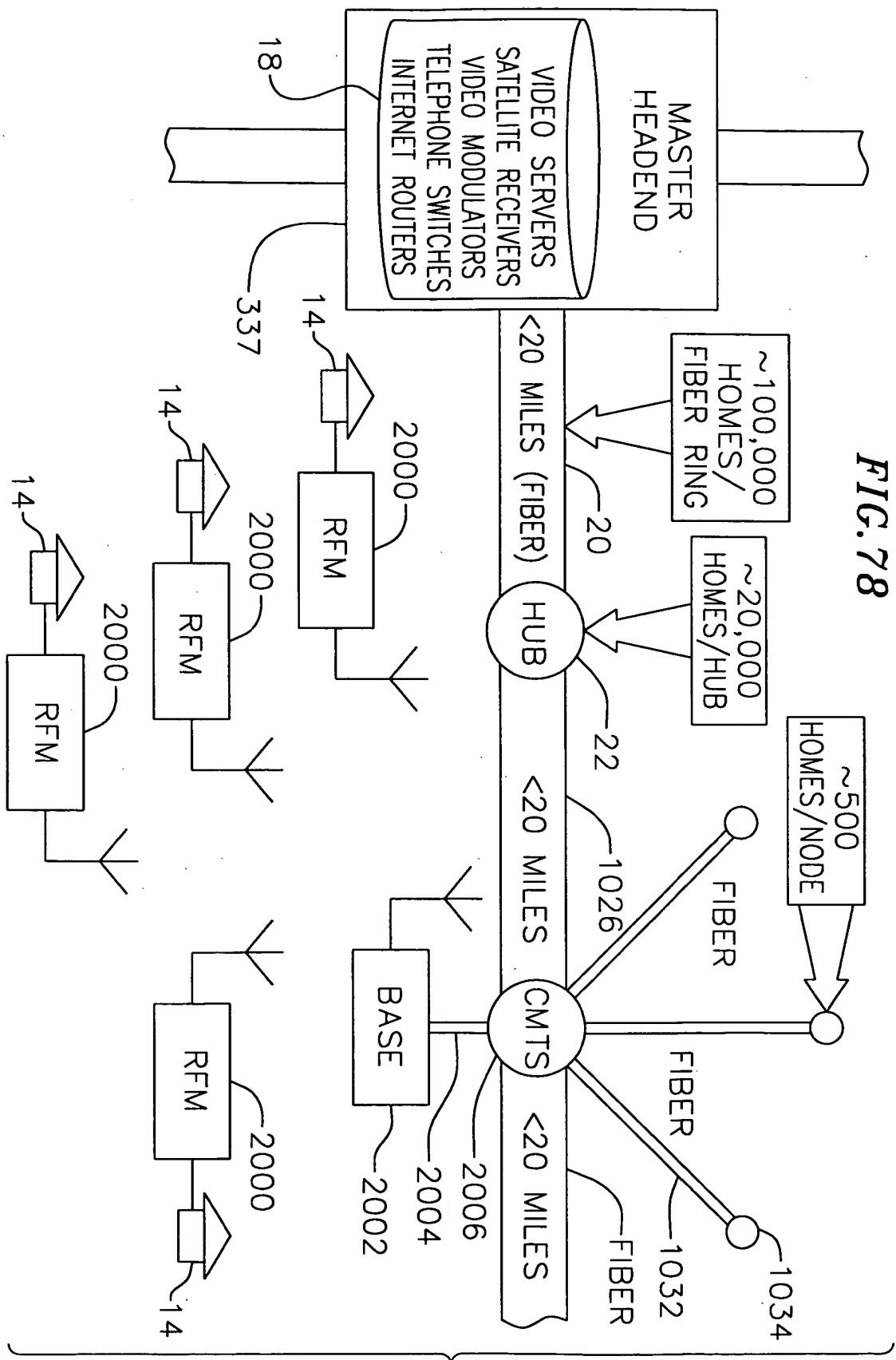


FIG. 79

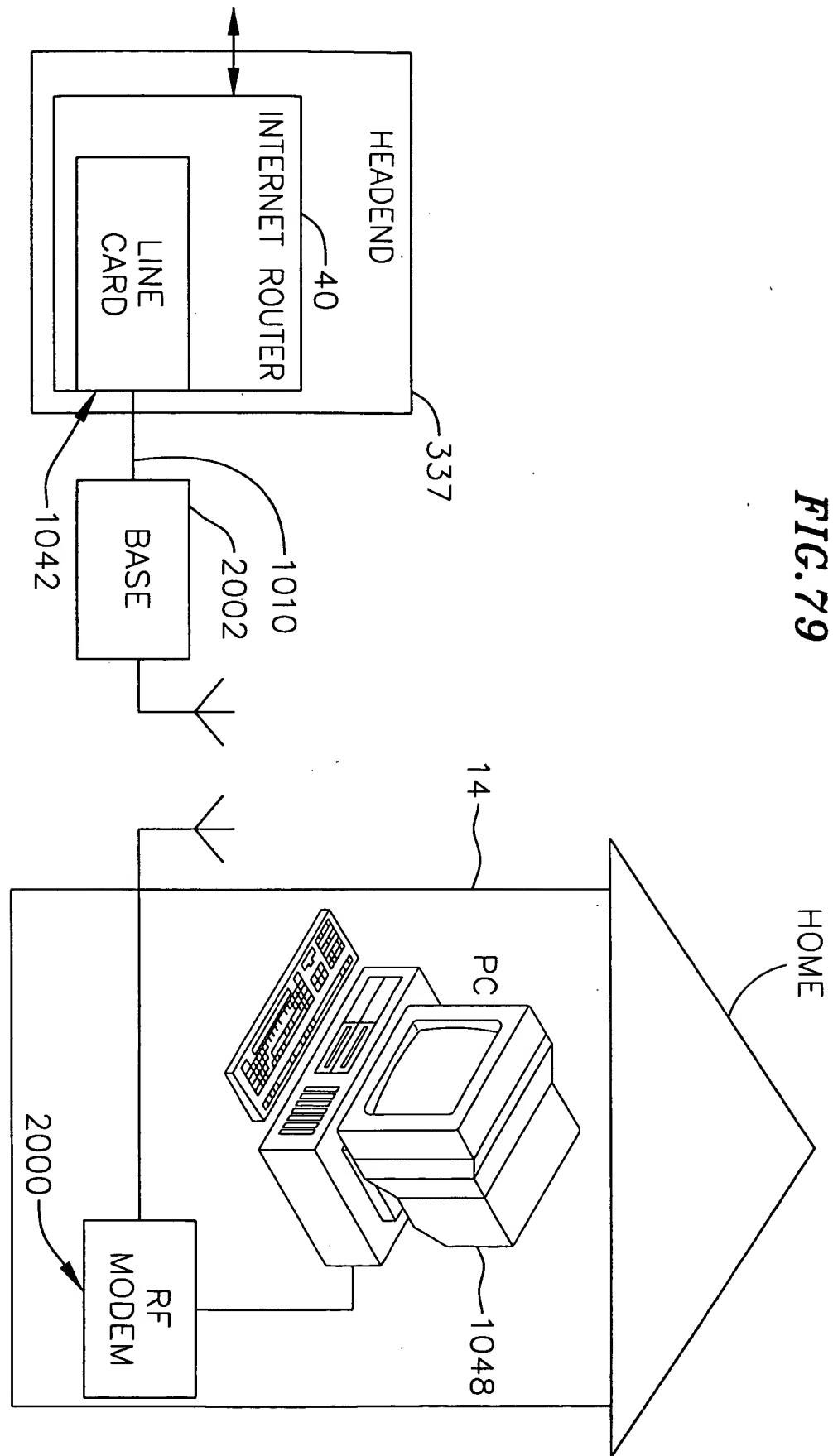


FIG.80

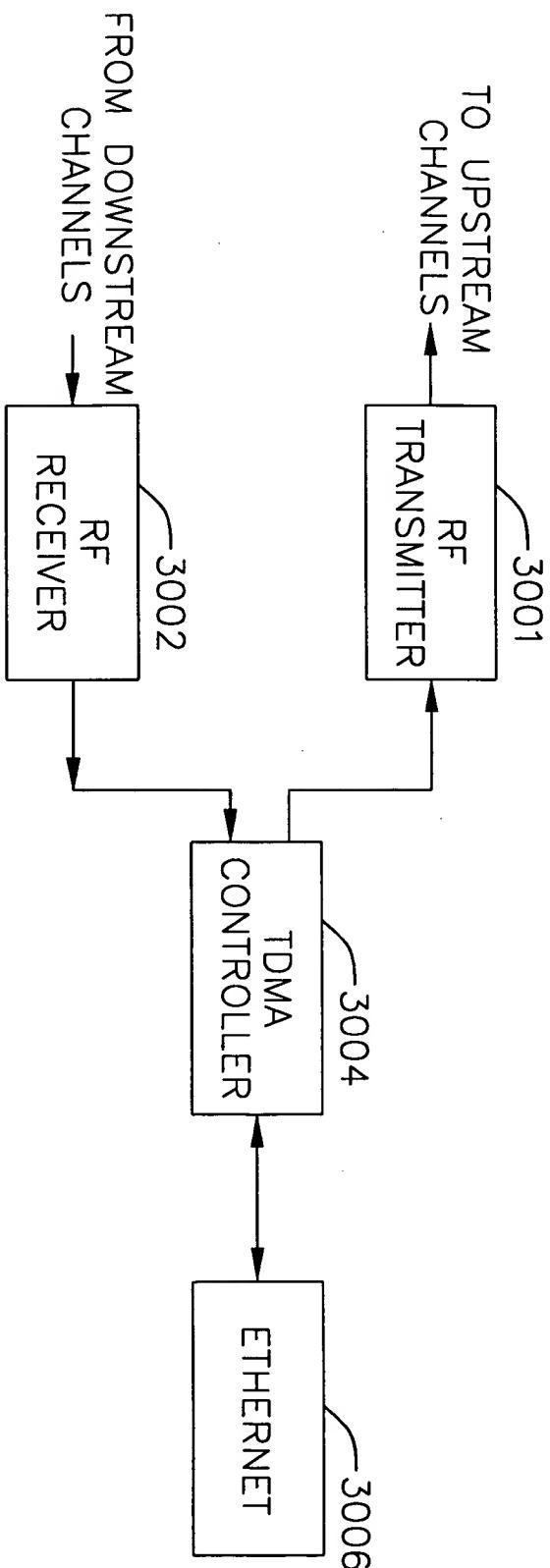


FIG.81

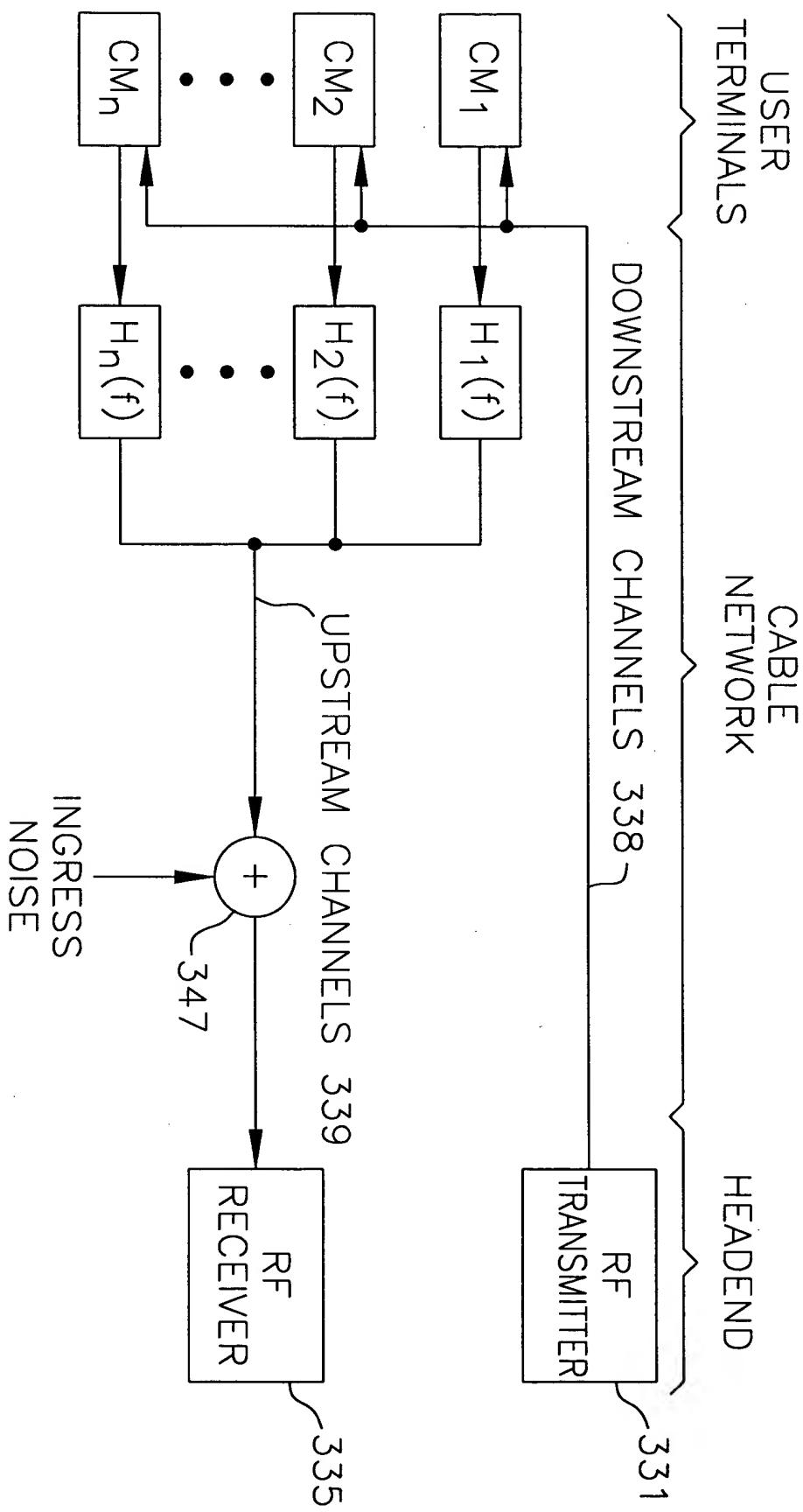
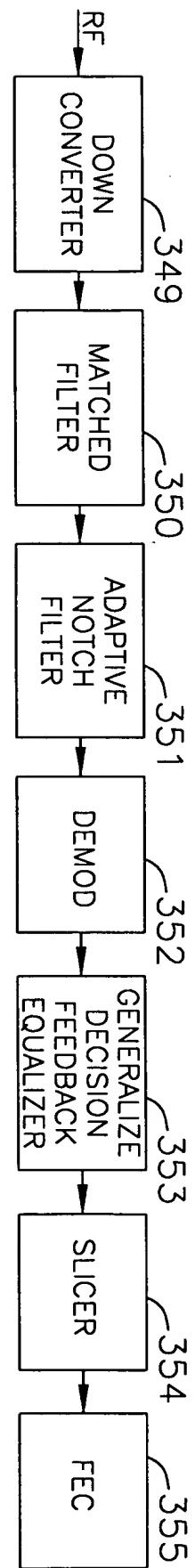


FIG. 82



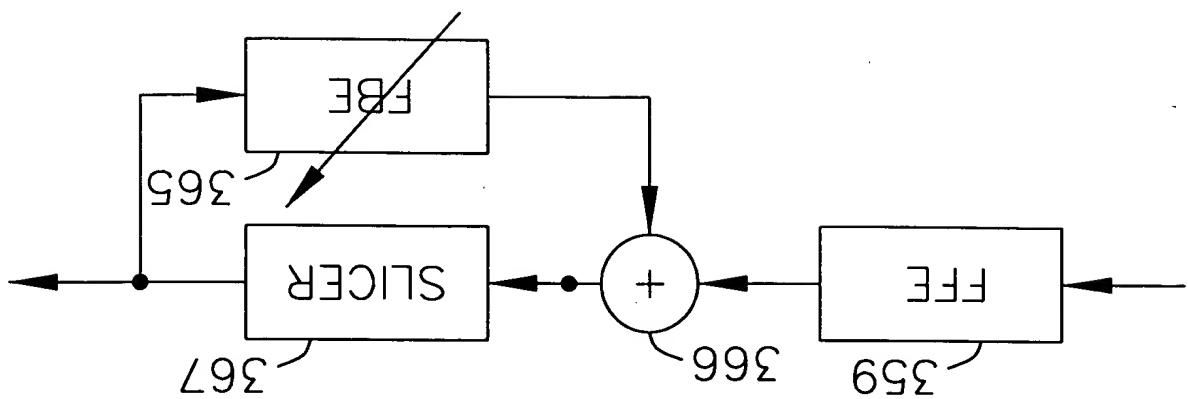


FIG.84

0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0

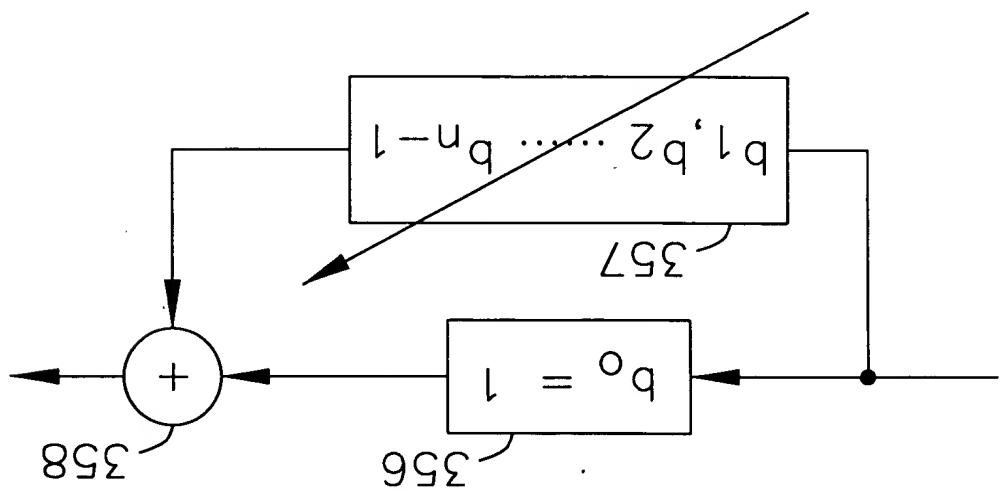


FIG.83

FIG.85

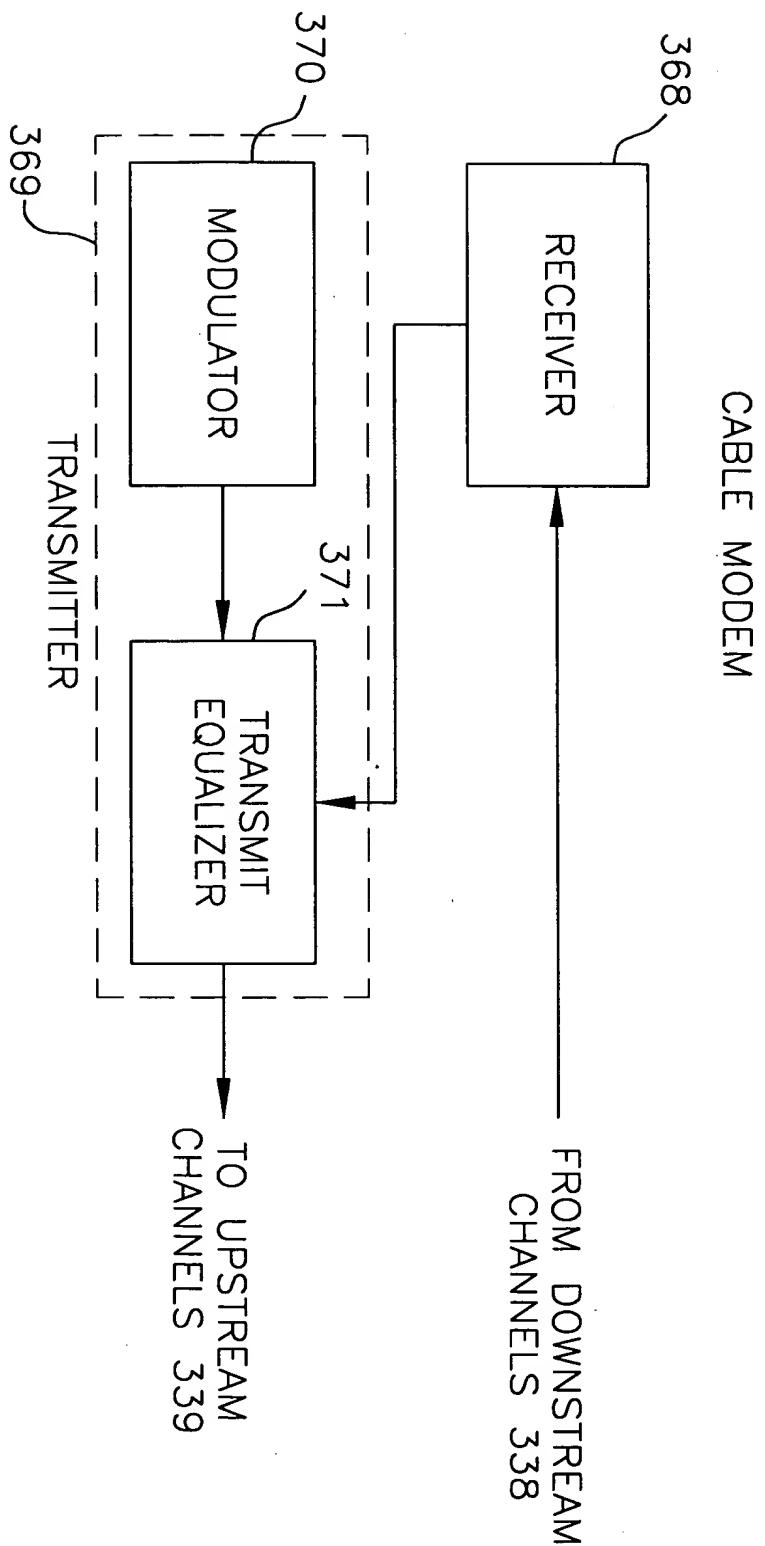


FIG.86

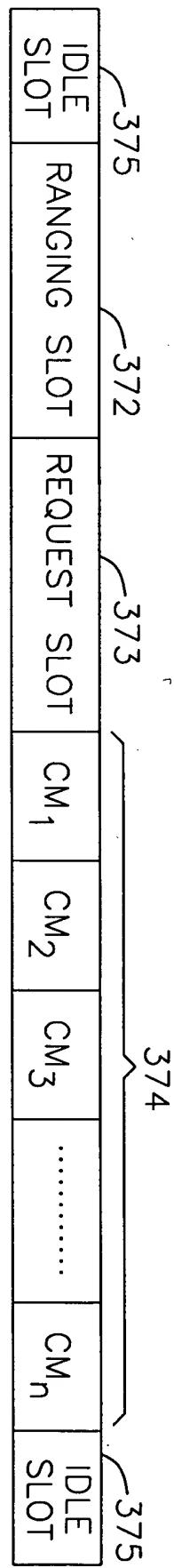
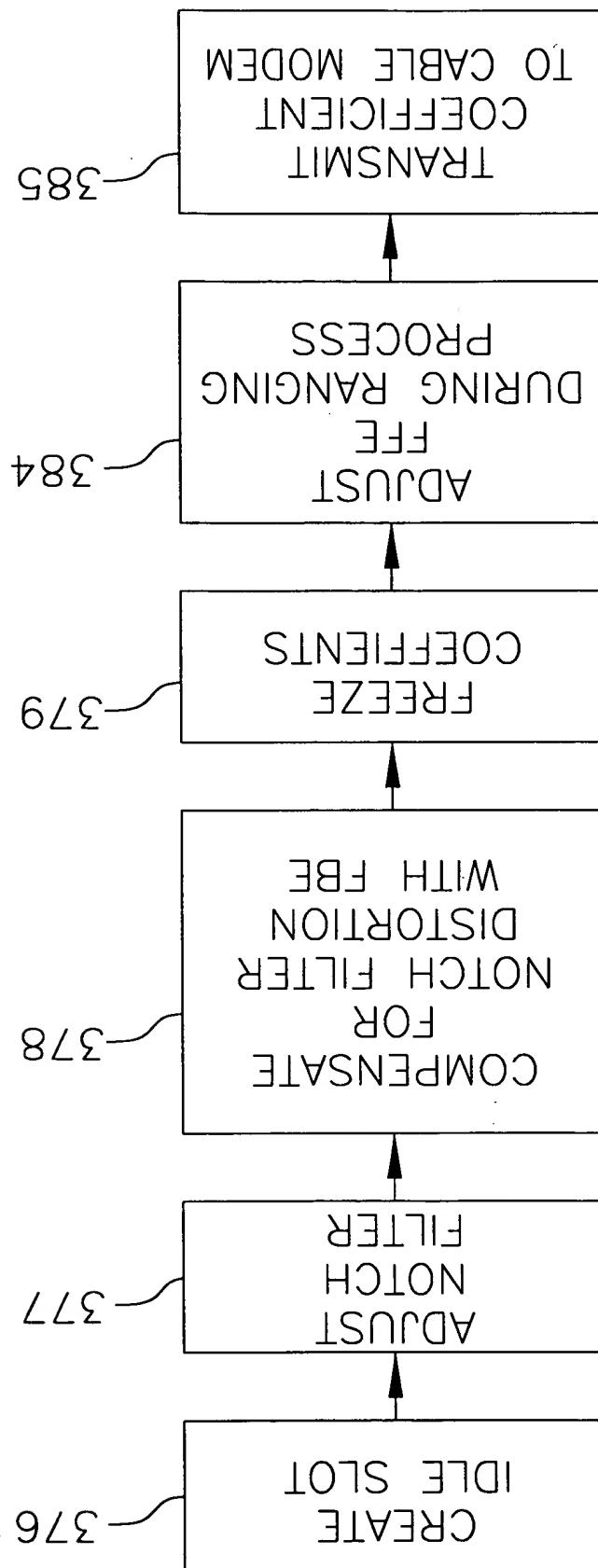


FIG. 87



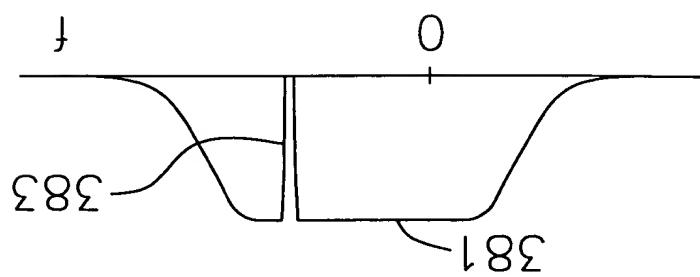


FIG. 88C

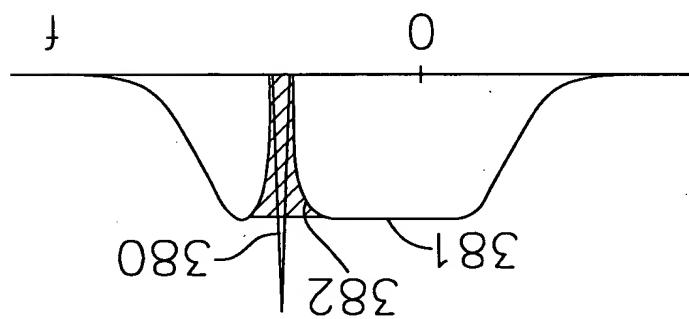


FIG. 88B

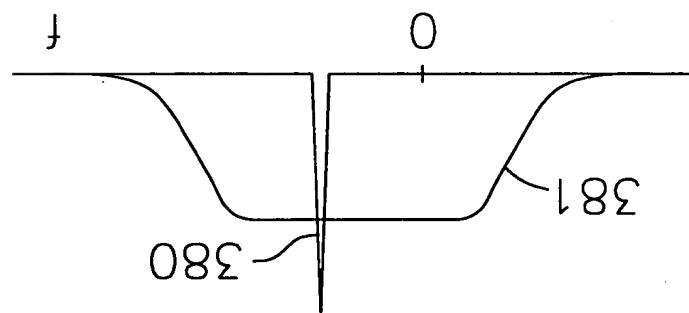
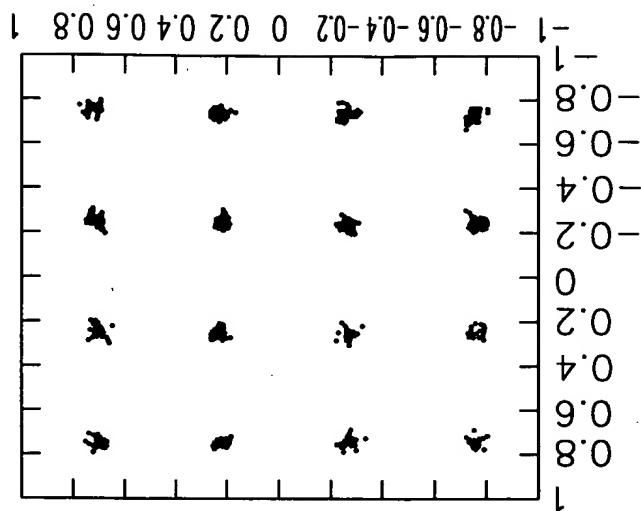
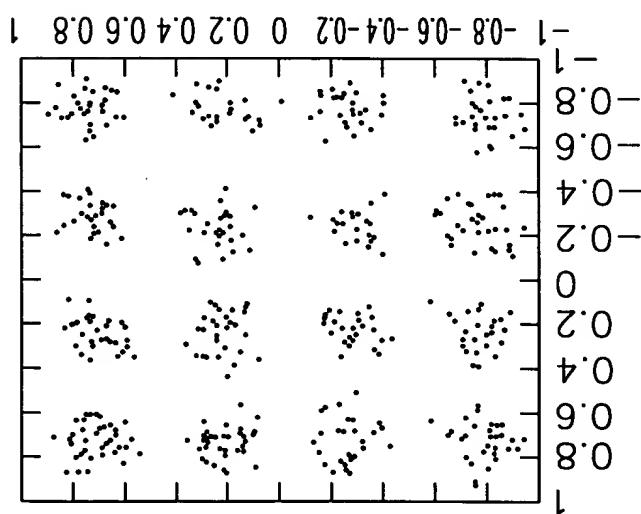


FIG. 88A



## 16-QAM CONSTELLATION AFTER NOISE REJECTION

FIG. 89B



## 16-QAM CONSTELLATION BEFORE NOISE REJECTION

FIG. 89A

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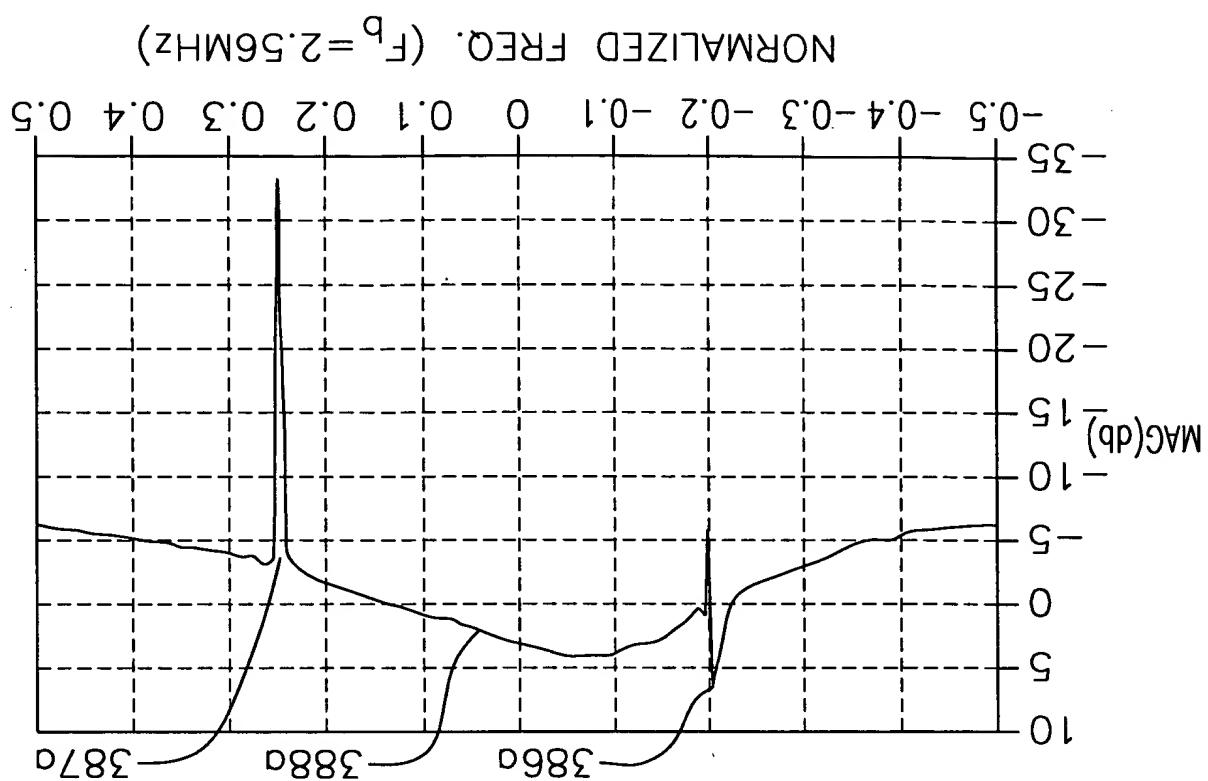


FIG. 90B

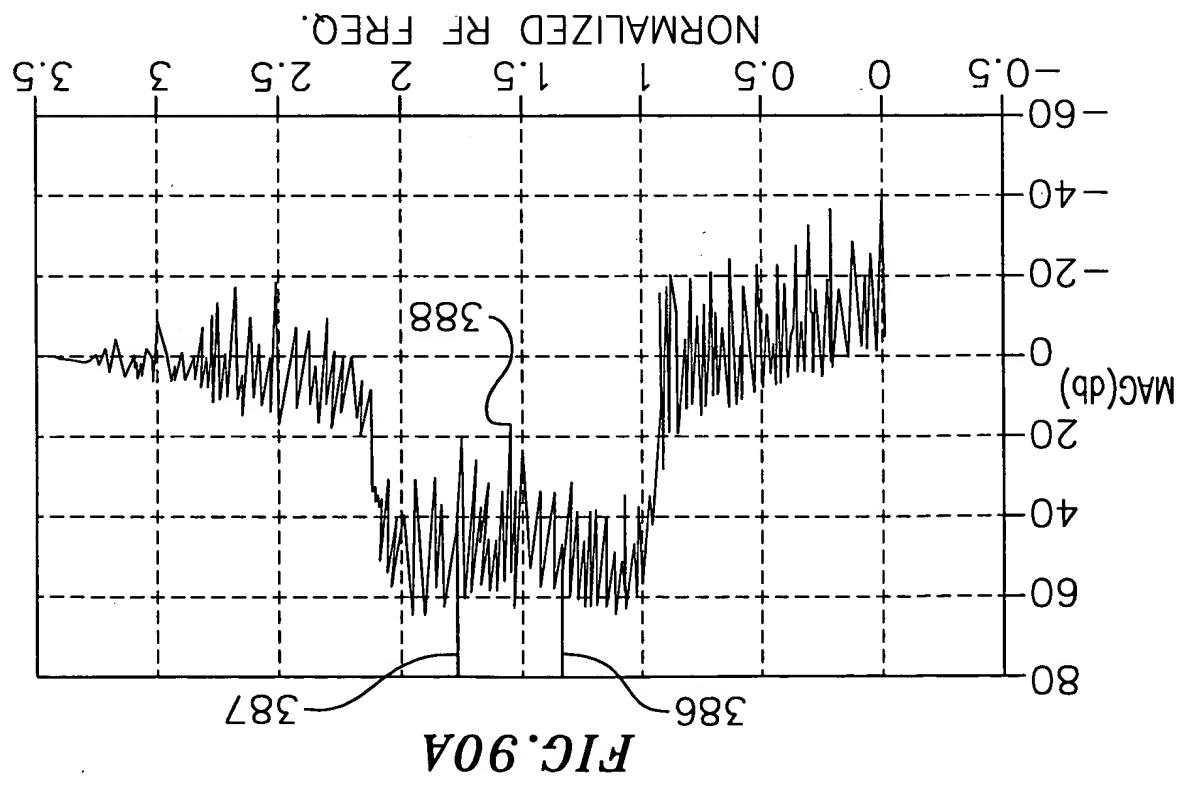


FIG. 90A